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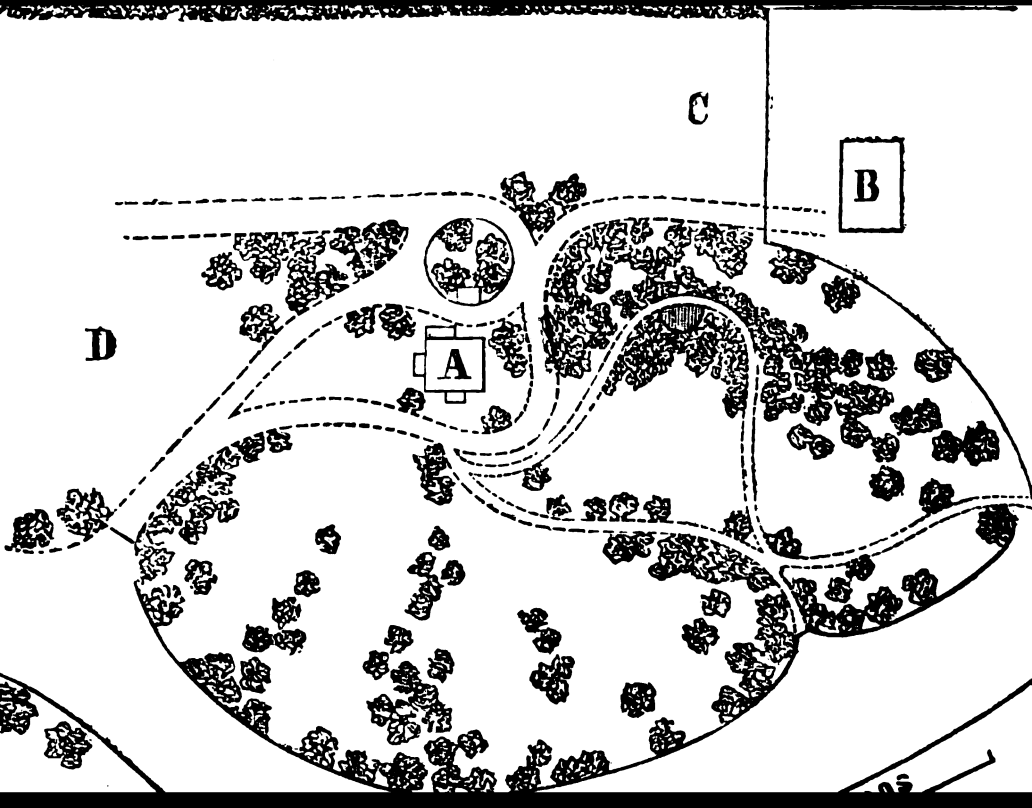

Transactions of the Illinois State Agricultural Society

Illinois State Horticultural Society

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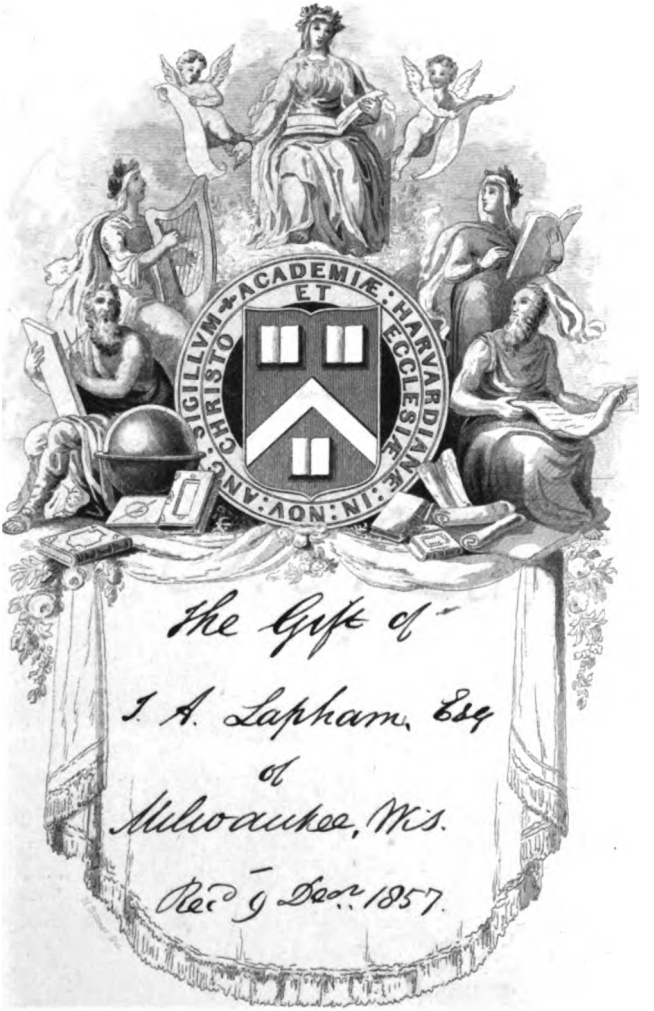

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TRANSACTIONS

OF THE

ILLINOIS STATE AGRICULTURAL SOCIETY,

WITH NOTICES AND

PROCEEDINGS OF COUNTY SOCIETIES

AND

KINDRED ASSOCIATIONS.

JOHN A. KENNICOTT, EDITOR. S. FRANCIS, COR. SEC'Y, IN CHARGE.

VOLUME II.—1856-57.

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EDITORIAL NOTICE.

Farmers of Illinois: A second volume of the Transactions of your state society is before you; and the editor has no hesitation in pronouncing the work a good one. Much of the matter is of a highly scientific character, not common to similar official publications. The reports of awarding committees, statements of competitors for premiums, &c., are not without interest to the general reader; but the premium treatises, and more extended voluntary communications of men of thought and science, make up the bulk and the practical value of the work; and all are confidently commended to the attention of those into whose hands it may chance to fall.

Special notice is not intended; but while thanking the liberal contributors of our own state, the editor may be permittted a word of gratulation in regard to the much-needed paper on our *Grasses*, and the complete catalogue of Illinois plants, by that excellent western botanist, I. A. Lapham, of Milwaukee. The former, every inquiring farmer and grazier will appreciate, and the latter supplies a record of our rich native flora, of much importance to science, and which each succeeding season was rendering more difficult of accomplishment.

An admirable catalogue of plants found in the vicinity of Peoria was also presented by Dr. Frederick Brendel, which was neces-

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The illustrations and general mechanical execution of the work are highly creditable to all concerned. Indeed, very few public documents can be found better printed; and in addition to the faithful performance of this duty, the state printer and his courteous assistant, Mr. S. G. Nesbitt, have helped, in other ways, to increase the usefulness of the volume, and lessen the anxieties of an absent editor. Truly your friend,

JOHN A. KENNICOTT.

The Grove, West Northfield, Ill.,
September 28*th*, 1857.

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IMPORTANT LAWS FOR THE BENEFIT OF AGRICULTURAL SOCIETIES IN ILLINOIS.

A GENERAL ACT for the incorporation of county agricultural societies.

SECTION 1. *Be it enacted by the people of the state of Illinois, represented in the General Assembly,* That an agricultural society may be formed in any county of the state, by the voluntary association of any number of legal voters of the same—not less than twenty—who may meet and organize for that purpose, under a constitution and by-laws of their own construction, which they may alter and amend at pleasure; the use and benefit of the same to be alike free to every citizen of the county who is disposed to associate with them under the constitution and by-laws so provided, and in accordance with this act, upon such terms as may be provided.

§ 2. Each county society thus organized may thereupon be constituted a body corporate and politic, under an appropriate name; which name, together with that of the president, secretary and treasurer, shall be recorded on the books of the county clerk of the county wherein said society is located; whereupon said society shall be deemed legally constituted, and under this name shall be capable of contracting and being contracted with, suing and being sued, pleading and being impleaded, in all courts of law and equity in this state; and in said county shall have power to sue for and collect all gratuitous subscriptions which are or may be made to such society; and may have a common seal, which they may change at pleasure; and may, in their corporate name, acquire, by purchase or otherwise, and hold real estate, for the use and to promote the objects of the society, not exceeding in quantity, at any time, five hundred acres.

§ 3. Any person who shall, without the permission of the officers of the corporation, enter within any inclosure which may be used by such corporation for an agricultural or mechanical fair, and any person guilty of disorderly conduct, or such as may interrupt or be prejudicial to the interests of said fair, show or exhibition, whether inside the inclosure for the same, or at any distance within two hundred yards of such inclosure, shall be liable to immediate arrest, and to the payment of five dollars to the association, to be recoverable at suit of said corporation, in action for debt, before any justice of the peace or other court in this state.

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AN ACT to aid and encourage county agricultural societies.

SECTION 1. *Be it enacted by the people of the state of Illinois, represented in the General Assembly*, That the sum of one hundred dollars is hereby appropriated to the use of eac hand every agricultural society throughout the state, for the purpose of giving them aid and encouragement in the general object of promoting agricultural improvements. And the treasurer of this state is hereby authorized and directed, when called upon for that purpose, to pay over to the treasurer or fiscal agent of each county agricultural society in the state, the sum of one hundred dollars, on receiving his receipt therefor, accompanied by the certificate of the county clerk of each county respectively, where such agricultural society is located, that such society is organized, and that such treasurer or fiscal agent is authorized to receive and receipt for money on behalf of the same.

§ 2. The grant of one hundred dollars to each county agricultural society as aforesaid, may be demanded and received, for the year 1857, by each and every county agricultural society that is now duly organized, or that may be so organized on or before the first day of Jnne next; and a further sum of one hundred dollars is granted to each county agricultural society throughout the state, for the year 1858, that is now duly organized, or that may be so organized on or before the first day of June, 1858; and the treasurer of this state is hereby authorized and directed to pay over the same, under the same conditions as provided in the first section of this act.

§ 3. This act to take effect and be in force after its passage.

APPROVED Feb. 12, 1857.

AN ACT to prevent the sale of spirituous liquors and other articles of traffic at or near agricultural fair grounds.

SECTION 1. *Be it enacted by the people of the state of Illinois, represented in the General Assembly*, That no person shall keep any shop, booth, tent, wagon or other carriage, vessel or boat, for the sale of spirituous or other liquors, or any provisions or any article of traffic whatever, or sell, or expose to sale, give, barter, or otherwise dispose of, in or near any such shop, booth, tent, wagon or other carriage, vessel or boat, or in any other way or place, any spirituous or other liquors, or any provisions, or any article of traffic whatever, at or within the distance of two miles from the place where any agricultural, horticultural or mechanical society, or people are collected, holding any agricultural, horticultural or mechanical fair or public exhibition; nor shall any person, within the distance aforesaid, exhibit any shows or plays, unless the same shall have been duly authorized by the proper authority, previous to the commencement of such exhibition; nor shall any person, within the distance aforesaid, promote, aid or be engaged in any racing of animals, or in any gaming

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person shall continue in such violation, he, she or they shall forfeit and pay for every such offence any sum not less than five nor more than fifty dollars to the society holding such fair or exhibition, to be recovered before any justice of the peace or court having jurisdiction of the prosecution; and any judge of the circuit or county court, sheriff, coroner, justice of the peace, or constable of the proper county, shall, upon view or information, and without warrant, apprehend any person so offending, and seize booth, tent, wagon or other carriage, vessel or boat, spirituous or other liquors and other articles of traffic, and convey the same to a place of safe keeping, and take the said persons before any convenient justice of the peace having jurisdiction, together with an inventory of the things so seized; and the justice of the peace, upon complaint or oath, or affirmation of any competent witness, shall issue his warrants, which the said officer or constable shall have authority to serve, and cause the said offender to be arrested, and proceed forthwith to inquire into the truth of the accusation, and if found true, shall enforce the penalty of this act.

§ 3. If the accused shall fail to pay such fine as said justice of the peace shall inflict, together with all costs of proceedings, including the necessary expense of such seizure, the said justice of the peace shall forthwith issue an execution, commanding any constable of the county in which such inquiry shall be had to make the said fine, costs, necessary expenses and costs of execution, by sale of so much of the things so seized, and of so much of the other property of the accused as shall be necessary therefor, and to make return thereof in ten days thereafter, and the overplus of the things so seized as aforesaid, after the satisfaction of said execution, shall be delivered to the defendant, on demand.

§ 4. In case the officer to whom said execution shall be delivered shall be unable to find sufficient property of such defendant to satisfy such execution, such agricultural or other society, upon affidavit of any of its officers, shall be entitled to a *ca. sa.* against the body of the defendant, as in other cases. The defendant in any suit under this act shall have the right of trial by jury, as in other cases under the laws of this state.

§ 5. This act is hereby declared a public act.

APPROVED Feb. 13, 1857.

These laws are sufficiently plain. They were designed to be efficient; and will be so if the letter and spirit of them are carried into effect by those interested.

The fiscal agents of county societies, in drawing the money from the state treasury appropriated to such societies, should be particular to have the certificates of the county clerks of their re-

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COMPARATIVE EXHIBIT OF ENTRIES AT THE STATE FAIRS OF 1856 AND 1857.

Departments.	1856.	1857.
Class A. Cattle,	158	174
" B. Horses, jacks and mules,	216	473
" C. Sheep,	51	109
" D. Swine,	23	14
" E. Poultry,	12	29
" F. Agricultural implements,	120	147
" G. Farm products,	203	147
" H. Fruit, flowers, &c.,	50	199
" J. Musical instruments, paintings, &c.,	97	88
" L. Textile fabrics, needlework, &c.,	188	267
" M. Natural history, &c.,	27	17
" O. Plowing match,	5	13
" N. Miscellaneous,	360	276
Total,	1510	1953

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TRANSACTIONS

OF THE

ILLINOIS STATE AGRICULTURAL SOCIETY.

BIENNIAL REPORT OF THE EXECUTIVE COMMITTEE.

To the Governor and General Assembly
of the State of Illinois:

The executive committee of the Illinois State Agricultural Society beg leave to present the following report of the proceedings of the society, for the years 1855 and '56:

During the two first years of our corporate existence the society was aided by an appropriation from the state treasury, which enabled us to hold a successful fair each year, as set forth in a former report. But a bill continuing this aid, by a greatly increased amount, introduced from the agricultural committee, though passing the house almost unanimously, was not sent to the senate till near the close of the session; and having been amended there, failed to become a law from want of time to act upon it. In consequence of this oversight, the present executive committee were compelled to enter upon their onerous duties without a dollar available in the treasury of the society. But, nevertheless, we determined to hold our third annual fair in the city of Chicago, whose Mechanics' Institute guaranteed our fixtures, and the city council an efficient police and other necessary co-operation. And

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also, one or two new features at this fair worthy of special mention. The Illinois Central Railroad Company, through their general superintendent, R. B. Mason, proposed to the society to make a collection, through the employees of the road, to aid our exhibition, and show the natural capacity of the soil and undeveloped resources of the country traversed by their line.

In addition to this, a free pass and general letter of credence were tendered to any agent the society might see fit to appoint to aid in making collections to illustrate the natural history of the state, and in accordance with this suggestion, Robert Kennicott was appointed on our behalf, who, with the aid of those able naturalists, Hay and Lapham, of Wisconsin, so arranged and labeled the railroad collection and his own, as to present quite a study of the geology, botany and zoology of Illinois. And the society having invited some one hundred and fifty eminent agriculturists and men of science from abroad, to whom the railroad company sent free passes over their whole line, and citizens of Chicago gave free entertainment, we were enabled to take the opinions of some of the best practical men in the United States on the general and particular excellence of our exhibition, and the superior natural advantages of the state of Illinois.

Though held in a corner of the state, far removed from most of our large herds of fine stock, the show of cattle was grand and imposing; and in almost every department the exhibition was in advance of previous fairs, as partly verified by the number of entries, which we have set down at two thousand.

Amount of receipts at Chicago,.....	$12,735 00
Cost of premiums and other expenses, for 1855,..	11,491 11

FOURTH ANNUAL FAIR.

This fair was held near the city of Alton, September 30th to October 3d, 1856.

The location, on the Mississippi, at a point ordinarily accessible to the citizens of other states, and especially those of a neighboring city, induced the executive committee to open the premium list of the society to all exhibitors alike.

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The preparations for this fair were liberal. The citizens of Al

horses, the accommodations were ample, and all highly creditable to the people of Alton, and, notwithstanding the many fears on the subject, it is believed, too, that visitors were reasonably well provided for, and that preparation was made for feeding and lodging many more than attended.

This was again a great cattle show, and horses, mules, &c., were abundant. In several other departments the collection was highly creditable, and especially so in agricultural implements; and for the first time there was a well contested plowing match on the grounds.

As a whole, the Alton fair was considered a good one; though, owing to the low stage of water in the rivers, and other causes needless to name, the number of entries for competition and visitors from abroad were not equal to our expectations.

Entries at the fair,.....	1,450
Amount of receipts,.....	$9,002 95
Cost of premiums and other expenses, for 1856,....	8,354 73

RAILROADS.

We report the action of railroad companies in connection with our fairs, because their aid is essential to our success. We should find it difficult, if not impracticable, to get up a good show and full attendance without their liberal co-operation.

At the Chicago fair all the roads of the state carried animals and articles, for exhibition only, free of charge, and visitors at greatly reduced rates. It is believed that the Rock Island road charged passengers less than other lines during the four days of the fair; still it is doubtful whether this extra liberality was sufficiently appreciated, when taken in connection with the fact that at least *six* days are necessary for members of committees and others interested.

At our recent fair our main dependence was on the roads entering Alton. These lines met our expectations in the most liberal and efficient manner, and to the managers of the Chicago and

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tion of our just expectations would have been no disadvantage to the railroad company, and but little trouble to its managers.

STEAMBOATS.

At the Alton fair the number of our visitors, and the accommodations for feeding and lodging them, were greatly increased by the steamboat interest, and we are especially indebted to the Alton Packet Company in this connection, and for free tickets to our officers and assistants. But as our general arrangements with the boats were all more or less conditional, and to be governed by the stage of water, they were perhaps unable to make, and we certainly had no right to demand the same concessions as those accorded by railroads of the state.

AGRICULTURAL SOCIETIES.

The principle of voluntary agricultural association is better developed here than in any other part of the world, and our societies date as far back as the oldest in Europe. It is only a few years, however, since they became common, and the general recipients of state bounty as necessary institutions of the age. And yet they can hardly be called "educational institutions," though great numbers of ignorant farmers and mechanics receive first lessons in progressive agriculture and art through their agency, and some political economists, in older states, have estimated their influence on production, and the valuation of property, at millions of dollars per annum. But their true mission is to draw public attention to great improvements in the arts of production, and excite special interest rather than supply special wants.

To effect this object, state societies have adopted two principal modes of action—the one mostly self-sustaining, the other mainly depending on legislative custom.

STATE FAIRS.

These have grown out of the old cattle shows and sale fairs

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would not have called out. And then those who wish to purchase can have the opinions of good judges, and often avoid much disappointment.

But these are only incidents of state fairs, which, as the annual jubilees of labor, bring together many thousands of working men, who have no very certain notions of what they are about to see, and are less often benefitted by the things seen than through new ideas gained by a free intercourse and exchange of thoughts and experience with each other, and the new feelings aroused by the homage paid to excellence and the necessary prominence of the agriculturist on these happy occasions. Such moral results are our first object, and the true aim of these initiatory schools of demonstration, and the moment we shall have succeeded in creating an abiding interest in our present operations throughout the whole state, our introductory mission will be ended. But to effect this, *we must go to the people,* taking our fairs where most needed, instead of where most money can be made or saved by the society.

The itinerant principle is always popular, and perhaps indispensable in a large state like ours. But with an empty treasury, it may be virtually impracticable when both just and desirable on other accounts, and it is only to meet such exigencies that we now ask an appropriation from the state treasury.

COUNTY AGRICULTURAL SOCIETIES.

The reported increase in the numbers of local organizations during the last two years, is less note-worthy than the rapid perfection of a few, and the excellent shows of many. In this some have made a near approach to the first year of the state society, and are in a better relative condition for future operations.

Of the policy of encouraging and sustaining county societies there can be no question, and especially in regard to the publication of their proceedings reported through the state society.

DISTURBANCES AT FAIRS.

There is a growing evil recently attaching itself to agricultural

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entrance gates, and when outside of city limits there is no power in us to abate the nuisance, or protect the ignorant and credulous victims of this vagabond trickery, or even save them from actual demoralization at a place to which we invite them for very different objects.

A copy of the New York law on this subject is appended. The same, in substance, has been enacted in other states, and is usually deemed sufficient.

STATE AGRICULTURAL PUBLICATIONS.

It is a universal practice, where state agricultural organizations exist, for the legislature to order the printing of reported Transactions. Our last general assembly, sanctioning this good custom, directed the printing of three thousand extra copies of our first report and accompanying papers, the whole making a volume of over six hundred pages of highly useful and interesting matter. This work, we are happy to say, has been much sought for by reading men, and highly commended by eminent idividuals and the agricultural press generally. And being distributed free, over the whole state, it has been of great service to many; and as a book of reference will doubtless continue to be useful and popular, especially with a class of men who sometimes read, but will not pay money for agricultural reading.

Accompanying this report will be found a list of essays and other material already collected for a second volume of State Transactions; and we have other matter promised, should it be needed. But the proposed contributors, being professional writers, prefer supplying special wants, or else await the action of the legislature, before devoting time to the perfect arrangement of materials on hand. Of this latter class we would particularly mention two papers reported—one by that excellent western botanist and scientific writer, J. A. Lapham, of Wisconsin, on the useful and noxious *grasses* of Illinois—the other from the pen of a young and enthusiastic naturalist, of our own state, on the *animals*, injurious or beneficial to vegetation. And, to be fully available to our farmers, these essays ought to be illustrated by cheap wood engravings. The same may be said, too, of building plans and ground plots for

AGRICULTURAL EDUCATION.

This is a theme which we now find embraced in nearly every agricultural report published. And though the principle of practical and even specific education is unquestioned, it cannot be denied that there is great diversity of opinion in regard to the *mode* of educating practical men, and especially farmers.

Our idea is not a new one, however; it has occupied the minds of statesmen and philanthropists for thirty years past, and is partially reduced to practice in Great Britain and on the continent of Europe, where there were 350 agricultural schools in operation six years ago; nine of them in Belgium, alone, and all supported by government. That the principle has worked well in Europe all admit, and that it will work still better here, no thinking man can doubt, unless blind to the necessities of agriculture and the practical tendencies of the age. And the experiment is to be tried in our sister state of Michigan, whose legislature created a separate agricultural college two years ago, and richly endowed it with lands held by the state for educational purposes. A college has been established in New York, also, which will go into operation soon after that in Michigan. And in this state we have funds sacred to the cause of higher education, which might be devoted to the establishment of an agricultural school, and yet be made equally available to every other interest in the state.

A university, open to all, yet mainly calculated for the education of practical men in the sciences underlying their life-pursuits, and especially teachers for our primary schools, would seem to be well fitted to subserve the interests of all. And even if called an "agricultural college," there may be reason in the name, for we are a majority of the whole people. We pay most of the state taxes, also, and it will not be denied that our special interests lie at the bottom of most others. Commerce, manufactures, trade, the fine arts and the learned professions—even the value of city lots and railroad stocks—rest mainly on the success of agriculture; and yet we have been left to educate our sons, for the farm, as we were educated on it; and it does not seem to be understood that we can communicate *no more than we know ourselves!*

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of production. And it is deemed more economical, in point of cost, and more politic and popular, to connect a normal school with our university than to establish it on a separate foundation; for the same appliances would answer for both, and no separation of interests be left for future jealousy and conflict.

Further special argument does not appear to us necessary at this time, but should it be required, we refer you to the 3d, 16th, 26th and 400th pages of our first volume of Transactions.

TREASURER'S REPORT.

Hereunto appended will be found the biennial statement of our treasurer:

Report of the Treasurer of the Illinois State Agricultural Society, January 7th, 1857.

Premium plate on hand,		$1,339 00	
Less premium plate in hands of I. Speer, Chicago, $100 00			
Premium plate on hand, belonging to State Agricultural Society,	39 00		
		139 00	
			$1,200 00
Balance in the treasury, 3d January, '55,			111 80
Received from S. Francis, for memberships,			71 00
Receipts at Chicago,			12,735 00
Received of Mr. ———, to be added to premiums on beehives,			10 00
Received of L. B. Chandler, for membership,			1 00
			14,128 80
Expenditures by the executive board, for premiums and other expenses, during the year 1855. See vouchers No. 1 to 192, and vouchers No. 316, 317 and 318,			11,491 11
			$2,637 69

The State Agricultural Society has on hand the following premiums:

Twelve pair salt spoons, $1,	$12 00
Six butter knives, $3,	18 00
Three sugar spoons, $3,	9 00
	39 00
Plate in hands of Isaac Speer, Chicago,	100 00
	$139 00

Received at Alton fair,	$9,002 95
" of Mr. Rounds, per Mr. Arny,	5 00

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Amount of receipts brought forward.....	$9,037 95
Expenditures by executive board for premiums and other expenses, during the year 1856. See vouchers No. 193 to 315, and vouchers No. 319 to 329,.....	8,354 73
	683 22
Add balance left from Chicago fair,.....	2,637 69
Leaving a balance in the treasury, 7th January, 1857, of.....	$3,320 91

JOHN WILLIAMS,
Treasurer Illinois State Agricultural Society.

SPRINGFIELD, January 7, 1856.

The undersigned, a committee of the executive board of the Illinois State Agricultural Society, appointed to examine the books and accounts of the treasurer, would report: That they have performed that duty, and take pleasure in saying that they find his accounts kept in a plain, intelligible manner; that vouchers and full explanations were given us for all expenditures, showing the balance in the treasury, as appears by his books, $3,320 91.

We take this opportunity to express our approbation of the manner, the industry and fidelity with which he has executed his trust.

JOHN GAGE,
LEWIS ELLSWORTH.

All of which is respectfully submitted, on behalf of the executive committee of our society.

JOHN A. KENNICOTT,
Corresponding Secretary.

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LIST OF ORIGINAL MATTER,

COLLECTED AND PROPOSED FOR A SECOND VOLUME OF STATE AGRICULTURAL TRANSACTIONS.

Biennial Report of Executive Committee: JOHN A. KENNICOTT.
Proceedings of State Society.
Proceedings of Executive Committee.
Official Awards, 1855.
Official Awards, 1856.
Reports of Committees at Fairs.
Reports of Special Committees.
Statements of Premium Crops.
Statements of Dairy Products, &c.
Miscellaneous Statements, &c.
Annual Address, 1855.
Correspondence.
Proceedings of County Societies.
Proceedings of Institutes, &c.

ESSAYS, PLANS, SPECIFICATIONS, &C.

"Agricultural Resources of Southern Illinois:" EX-GOV. JOHN REYNOLDS, Belleville, Illinois.
"Wire Fence:" COL. HORACE CAPRON, Alden, McHenry county.
"Farmers' Railroads:" L. W. ASHLEY, Anna, Union county.
"Sugar:" CAPT. GEO. BARRELL, Springfield.
"Cultivation of Evergreens:" SAMUEL EDWARDS, Danville.
"Cultivation of Evergreens:" J. P. EAMES, Mendota.
"The Horse:" S. C. ROGERS, M. D., Plainfield.
"Nursery Labeling," &c., &c.: WM. STEWART, Quincy.
"Southern Illinois:" O. S. BAKER, Belleville.
"Rearing and Managing Cattle:" CHARLES W. MURTFELDT, Oregon.
"Rearing and Managing Cattle:" WM. STRAWN, Livingston county.
"Advantages to be derived from the Cultivation of Flowers:" O. ORDWAY, Lawn Ridge.
"Advantages to be derived from the Cultivation of Flowers:" REV. J. A. WIGHT, Chicago.
"Embellishment of a Country Home:" T. MCWHORTER, Millersburg.
"Sugar Millet:" CLINTON G. TAYLOR, Pleasant Ridge, Rock Island county, Illinois.
"[illegible]" W. H. [illegible], Littleton.

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"Cottage and Farm Architecture:" CHARLES BETTS, of the Prairie Farmer, Bur Oak, Michigan.

"Design for a Farm Cottage," (premium,) with specifications and remarks on Rural Architecture; JAS. A. MILLER, Alton, Illinois.

"Meteorological Observations:" FREDERICK BRUNDELL, M. D., Peoria, Illinois.

"Physical Education:" E. R. ROE, M. D., Bloomington, Illinois.

NATURAL HISTORY.

"Useful and Noxious Grasses of Illinois:" J. A. LAPHAM, Milwaukee, Wis.

"Catalogue of Illinois Plants:" J. A. LAPHAM, Milwaukee, Wis.

"Catalogue of Plants in a wild state, near Peoria:" FREDERICK BRUNDELL, M. D.

"Animals Injurious or Useful to Vegetation:" ROBERT KENNICOTT, West Northfield, Illinois.

ADDITIONAL LIST.

Address of BRONSON MURRAY, ESQ., before the La Salle County Agricultural Society.

A Design for a Hog House: C. G. TAYLOR, Pleasant Ridge, Rock Island county.

A Design for a Dairy House: C. G. TAYLOR, Pleasant Ridge, Rock Island county.

An Essay on Common Schools and School Houses: OLIVER ALBERTSON, Canton, Washington county, Indiana.

"The Farmer's Great Want:" Prof. J. B. TURNER, Jacksonville, Illinois.

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MEETING OF THE EXECUTIVE COMMITTEE.

SPRINGFIELD, JANUARY 2, 1855.

The executive committee met, pursuant to adjournment.

Present—J. N. Brown, president; C. W. Webster, F. Arenz, H. C. Johns, J. McClun, vice presidents; John Williams, treasurer; John A. Kennicott, corresponding secretary; S. Francis, recording secretary.

It having been communicated to this board that the honorable speaker of the house of representatives is willing to consider recommendations for the committee on Agriculture of the body over which he presides—

Resolved, by this board, That we respectfully suggest the name of H. C. Johns, of Piatt county, as chairman of said committee, and that the list of names for the remainder of the committee, to be suggested by him, be favorably considered.

The biennial report of the corresponding secretary was read and approved, and ordered to be published.

The biennial report of the treasurer was also read, approved and ordered to be published.

Resolved, That the treasurer be allowed the sum of fifteen dollars for assuming the claim for Alton ware, which was used by the society at the fair of 1853.

Resolved, That the president, Mr. Arenz, Mr. Webster and Dr. Kennicott be a committee to examine and report upon the essays submitted to the society for premiums.

Adjourned till to-morrow morning, 7 o'clock.

The executive committee met, pursuant to adjournment.

Present—Messrs. J. N. Brown, C. W. Webster, F. Arenz, H. C. Johns, J. McClun, J. Williams, John A. Kennicott, S. Francis.

Resolved That the corresponding secretary of this society be directed to convey

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Resolved, That the essay on "Hedging with the Osage Orange," by Henry Shaw, of Tazewell county, Illinois, is approved, and directed to be published in the Transactions of this society.

Resolved, That the claims of J. Maybe and L. McGowan, for the best crop of sweet potatoes, be laid on the table for further consideration.

Resolved, That the society award a premium to Edward S Cox for the best half acre of hemp, raised last season, with a description of the manner of cultivation; which description shall be published in the society's Transactions.

The essay furnished to the board by the president was read and approved, and the essays of Benjamin F. Johnson and Dr. Sprague; and all were ordered to be published in the society's Transactions.

Resolved, That with the view of giving to the people of this state the proceedings of the first executive committee of the state agricultural society, the same and the reports and essays accepted by this society be published under the supervision of the corresponding secretary of the society.

Adjourned to meet in the hall of representatives, this afternoon, at 2 o'clock.

The committee met, pursuant to adjournment.

Messrs. Arenz and Webster, appointed a committee to examine the treasurer's report, made that examination, and made the following report:

The undersigned have examined the accounts, receipts and expenditures of John Williams, treasurer of this society, for the years 1853 and 1854, find the same correct, and as represented in his report.

FRANCIS ARENZ,
C. W. WEBSTER.

On motion,

Resolved, That the compensation of treasurer shall be two per cent. on all moneys collected and disbursed by him.

Adjourned till 6 o'clock, P. M., to meet the members of the state society for the election of officers for the two years ensuing.

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PROCEEDINGS OF THE SOCIETY.

SECOND BIENNIAL MEETING.

WEDNESDAY EVENING, JANUARY 3, 1855.

The biennial meeting of the society was held in the representatives' hall.

The president, James N. Brown, called the meeting to order at half past six o'clock. The president then addressed the society, and presented a brief history of the proceedings of the executive committee during the last two years.

On motion of E. N. Powell, five hundred copies of the said address were ordered to be published.

Mr. Mills, of Marion, moved an amendment to the constitution of the society; which, after discussion, was laid on the table.

Members were invited to renew their membership, and other gentlemen to become members of the society. Seventy-one persons signed the constitution, and paid their annual fee of one dollar each. The society then proceeded to the election of officers for the next two years, by ballot:

Hon. HARVEY C. JOHNS, of Piatt county, was elected president, and the following named persons vice presidents:

1st	congressional	district,	JOHN GAGE.
2d	"	"	LEWIS ELLSWORTH.
3d	"	"	WILLIAM STRAWN.
4th	"	"	SMITH FRY.
5th	"	"	WILLIAM ROSS.
6th	"	"	FRANCIS ARENZ.
7th	"	"	JOHN M. BLACKBURN.
8th	"	"	C. W. WEBSTER.

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Mr. E. N. Powell moved that business be suspended for the introduction of an amendment to the constitution; which was done:

"That in all elections for all officers in this society, when there is but one person put in nomination, the election may be had *viva voce*."

The amendment to the constitution was agreed to.

JOHN WILLIAMS was then nominated for treasurer, and unanimously elected.

On motion of Mr. Arny, a committee was appointed to examined the report of the treasurer.

Messrs. Arny, Powell and Warren were appointed that committee.

Mr. Arny then offered the following resolutions; which were unanimously agreed to:

Resolved, That the executive board of the Illinois State Agricultural Society be instructed to correspond with the executive board of the United States Agricultural Society in relation to the national fair, for the year 1855, and that our board be requested to have the same held in our state: *Provided*, that satisfactory arrangements can be made to that effect.

Resolved, That the convention recommend to the boards of county agricultural societies to address their representatives in congress, from their respective districts, requesting them to use their utmost endeavors to procure a liberal appropriation by congress f r the establishment of a national agricultural department; to be placed on a permanent basis, under such arrangements as will disseminate practical agricultural knowledge throughout the entire Union, thereby promoting the general interests of the age.

Resolved, That this society indorse and recommend to the confidence and patronage of the farmers of Illinois the "Prairie Farmer," published in Chicago.

Dr. Kennicott offered the following resolution:

Resolved, That this society, in view of the eminent services of Hon. J. N. Brown, late president of the Illinois State Agricultural Society, tender him their unfeigned thanks for his efficient and useful labors in its behalf.

H. C. JOHNS, *President*.

S. FRANCIS, *Rec. Sec'y*.

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MEETING OF THE EXECUTIVE COMMITTEE.

THURSDAY, JANUARY 4, 1855.

Present—H. C. Johns, president; Smith Fry, W. Ross, C. W. Webster, F. Arenz, John Gage, William Strawn, vice presidents; John A. Kennicott, corresponding secretary; John Williams, treasurer; Simeon Francis, recording secretary.

Resolved, That the recording secretary be authorised to draw on the treasurer for premiums due Mrs. I. S. Britton, of Springfield; L. Weatherby, of Jacksonville, for two years old stud colt, Black Hawk, $6; Mrs. Mary Allen, of Springfield, for coverlet, $4; Luke Seely, for fruit, $3, on satisfactory evidence that they have not been paid; and that the recording secretary is also authorised to hand over diplomas to such persons as are entitled to them, where there is satisfactory proof that they have not received them.

Mr. Arny, from the committee appointed last evening by the state agricultural society, made two reports—one by himself and one by a majority of said committee; which were received. After some remarks and statements by members of the board, Mr. Arny proposed to sign the majority report and withdraw that made by himself; which was done.

The following is the majority report:

The committee appointed to examine the accounts of the treasurer of the Illinois State Agricultural Society, beg leave to report: That they have performed their duty, and find his accounts fairly kept, and supported by proper vouchers. They also find that he has paid out, for fixtures on fair grounds and police duty, the sum of $301, which your committee think should be refunded to the society by the citizens of Springfield, they having agreed to defray those expenses. They also find that the citizens of Springfield, for the year 1854, only paid $587 30 of the $1,000 they agreed to pay, leaving a balance of $412 70; in all, due by the citizens of Springfield for the two years, $713 70.

Your committee recommend that in future no commission be allowed to the treasurer, or, if allowed, that the account with him should be made up with interest, at the rate of ten per cent. per annum, balanced annually.

Your committee would also recommend a more strict economy in the expenditure of the funds of the society for expenses of the fairs, and a more liberal appropriation of

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Your committee, in conclusion, would call attention to the importance of holding no fair at any place, unless satisfactory and good bond be first given by some individuals of responsibility for the payment of such sum or performing such acts as may be prescribed by the executive committee.

All of which is respectfully submitted,

W. B. WARREN,
E. N. POWELL,
WM. F. M. ARNY.

Mr. Williams, the treasurer, stated that calls for propositions from towns and cities were made, and no place responded to the call. He and others endeavored to raise the sum, by subscription, for the location of the state fair here. They did not raise the full amount required, but the question was presented—shall we fail to have a state fair, or shall we make a report that the requirements of the board were complied with? Hoping to obtain further subscriptions, he did make the report to the president. He said that the requirements of the board had not been fully complied with, but he believed that the best thing that could be done, under the circumstances, was done. A successful fair was held; and if the committee required that the full amount should be paid he then offered that he would pay the whole deficit out of his own pocket.

The board took no further action on the subject.

On motion of Mr. Webster, a committee of five was appointed to prepare and report by-laws and regulations for the government of the board, and establishing the duties of the recording and corresponding secretaries, and for the regulation of fairs.

Messrs. Webster, Brown, Gage, Strawn and Arenz were appointed said committee.

Mr. Strawn moved that the place for holding the next state fair be considered, and the following places were named as points from which proposals should be received, viz: Chicago, La Salle, Bloomington, Peoria, Jacksonville and Salem.

Adjourned till 6 o'clock to-morrow evening.

FRIDAY, JANUARY 5, 1855.

The committee met, pursuant to adjournment.

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1. *Resolved*, That this society shall hold its annual fair and cattle show at such time and place as shall be designated by the executive committee from year to year.

2. That this society will hold its annual fair at no place which will not pay the entire expenses of grounds, fixtures and police.

3. That this society will hold its annual fair, for 1855, at ———: *Provided*, that the terms hereinafter specified more particularly shall be complied with, and sufficient guarantee given to the society.

4. That the corresponding secretary be required to correspond with the superintendents of railroads, and other transportation companies in this state, in relation to the transportation of stock and other articles for exhibition at the fair; and also in reference to the transportation of passengers visiting and returning from said fair.

5. That James N. Brown be appointed a committee to revise, and report to the president, a premium list on cattle.

That C. W. Webster and Smith Fry be appointed, for the same purpose, on horses, mules, jacks and jennets.

That James M. Blackburn be appointed, for the same purpose, on sheep, swine and poultry.

That William Ross be appointed, for the same purpose, on farming implements and machinery.

That Francis Arenz be appointed, for the same purpose, on the products of the farm, the dairy, orchard and garden.

That John Gage be appointed, for the same purpose, on manufactured articles.

That Lewis Ellsworth be appointed, for the same purpose, on inventions, art, skill, models and designs.

And that the committees hereby appointed shall make arrangements and superintend the several departments assigned them at the fair; and that each committee shall have full power to employ whatever assistance may be necessary.

6. That sweepstake premiums be awarded on the following classes: Classes A, B and C. No stock exhibited to be less than one year old; nor less than ten in number, and from one county.

7. That the president, corresponding secretary and treasurer be a committee to contract for the premiums necessary for the use of the society at the next fair, having special reference to the diplomas and plate now on hand: *Provided*, that no more shall be paid for than shall be actually paid out in premiums at the fair, the balance to be returned to the person of whom purchased.

8. That the persons appointed for the different departments nominate suitable persons for awarding committees for their respective classes, subject to the approval of the president.

9. That the premiums shall be ready for distribution on Friday morning of the fair week.

10. That all exhibitors shall become members of the society, except ladies exhibiting articles of skill or art.

11. That the entrance fee upon the show ground shall be twenty-five cents.

12. That the president, ex-president and corresponding secretary be a committee to procure an address to be delivered at the annual fair; also, to invite guests from

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14. That the duties of corresponding secretary shall be to carry on all correspondence with other societies, with individuals and general committees, in the furtherance of the objects of this society; to take charge of all communications designed for publication; shall correct, arrange and report the same to the executive committee; shall keep an account of all disbursements made in his office, and that the same shall be paid by the treasurer on an order of the president, countersigned by the recording secretary.

15. That the duties of the treasurer shall be to keep the funds of the society, and disburse them on the orders of the president, countersigned by the recording secretary; and shall make his report of receipts and disbursements at the biennial meeting of the society.

16. That the corresponding and recording secretaries shall receive three dollars per day for the time actually employed in the business of the society.

17. That the treasurer shall receive one per cent. for receiving and disbursing the funds of the society.

18. That the expenses of the executive committee, while transacting for and attending to the business of the society, shall be paid out of any money in the treasury not otherwise appropriated.

19. That the treasurer be required to give bond in the sum of ten thousand dollars, to be approved of by the president and recording secretary.

20. That the fair grounds, wherever located, shall embrace not less than twenty acres; and to be inclosed with a close board fence, not less than seven feet high, the boards running horizontally; fifty close stalls, 8 feet by 12; 200 close stalls, 8 feet by 12; all stalls to be covered; 100 tight pens for sheep and swine, 8 by 10 feet, 4 feet high, boards horizontally; 50 of these last pens to be covered with loose boards; and sufficient accommodation for poultry; the fence making one end of all the above fixtures; one show shed, 40 by 100 feet, arranged for the exhibition of fruits; two show sheds for the exhibition of manufactured articles of art, skill and models; these sheds to be arranged in the general manner of those at the fair grounds in Springfield, Illinois; a ring, well inclosed with posts and two planks, 400 feet in diameter; a floral hall; a business office, 25 by 60 feet, with a partition across the centre, with two outside doors, one middle door, a sufficient number of windows, glazed, desks on each side of the building its entire length, with a sufficient number of seats; a police office and a ticket office, 12 by 16 feet each, with necessary fixtures; four privies. The grounds to be supplied with sufficient water for all purposes, and at convenient points on the ground.

Resolved, That five thousand dollars be appropriated for premiums.

1. That premiums shall not be given when the animal or article is unworthy.

2. The diploma of the society shall be considered the highest honorary award, and shall be given in no case except for superior merit.

3. The same animal or article shall not receive two premiums, except in the sweep-

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will make proper allowance for age, feeding and other circumstances affecting the character and condition of the animal.

7. The awarding committee on fat cattle will give particular attention to the animals submitted for exhibition. It is believed, all other things being equal, those are the best cattle that have the greatest weight in the smallest superfices.

8. The judges will require all the cattle in this class to be weighed, and will take measures to give the superfices of each, and report the same and other circumstances affecting the character and condition of the animal.

9. Animals fed for the butcher shall not compete for premiums, except in their own proper class.

10. Exhibitors of stock will be required to give all the information possible of the pedigrees of their animals, and their treatment.

11. No exhibitor shall attempt to influence the awarding committees.

12. The awarding committees must present their awards to the corresponding secretary, on Wednesday, by 7 o'clock, P. M., and make written reports, within one month, to the same secretary, for publication.

13. The awarding committees may recommend discretionary premiums to the consideration of the executive committee for articles of merit.

14. No animal or article having received the first premium at a previous fair shall be permitted to be a competitor in the same class again.

The rules and regulations for the fair for 1854, from No. 1 to No 14, shall be the rules and regulations hereafter.

Resolved, That straw and hay will in all cases be provided, free of charge. Corn, oats, bran and meal will be furnished, at first cost, on the grounds.

That clerks attending the fair shall receive three dollars per day, in full for all claims.

That, in the opinion of the executive committee, the useful should be mainly considered in making up a list of premiums.

That the president, ex-president, recording secretary and treasurer determine the place where the fair shall be held; and that the same officers make all rules for the fair not now provided.

Adjourned to meet on Saturday before the fair.

TREMONT HOUSE, CHICAGO, OCTOBER 6, 1855.

Present—H. C. Johns, president; F. Arenz, J. N. Brown, J. Williams, treasurer; S. Francis, recording secretary.

On motion,

Resolved, That the sales of stock be commenced on Wednesday and closed on Tuesday.

Resolved, That the entrance fee for the sale of horses, mules, asses and cattle be three dollars for each; and all other stock five per cent. commission on the sales—

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TREMONT HOUSE, CHICAGO, OCTOBER 8, 1855.

The committee met, pursuant to adjournment.

Present—H. C. Johns, president; J. N. Brown, W. Ross, Smith Fry, John Williams, Simeon Francis.

On motion of Mr. Brown,

Resolved, That the first and second volumes of the American Herd Book and the English Herd Book be the standard by which all short horned cattle shall be decided by this society: *Provided*, that all cattle having equally good pedigrees shall compete as fully for the premiums of this society as though they were recorded in either of the works above referred to.

On motion of Mr. Arenz,

Resolved, That the above resolution shall go into effect after the present exhibition.

Adjourned.

TREMONT HOUSE, CHICAGO, OCTOBER 10, 1855.

The board met, pursuant to adjournment.

Mr. Arenz in the chair.

On motion,

Resolved, That the president be authorized to procure a license for John C. Maxcy, as auctioneer, and that he compensate Mr. Wartz, who has been conditionally engaged as such.

Adjourned.

TREMONT HOUSE, CHICAGO, OCTOBER 15, 1855.

Present—H. C. Johns, president; J. N. Brown, W. Ross, Smith Fry, John Williams, Dr. Kennicott, Simeon Francis.

Various bills were audited and allowed.

On motion of Dr. Kennicott,

Resolved, That each member of the executive committee have the privilege of distributing twenty-five copies of our volume of Transactions; and that, in addition to

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ing of the National Agricultural Society, to be held in Boston, on the 25th of this month.

Upon an examination of the hair braid exhibited by Mrs. H. J. Lipscomb of Menard county, and considering the great merits of the work,

Resolved, That Mrs. H. J. Lipscomb be awarded a silver goblet, of the value of $12, for the same.

Resolved, That the president of this society be authorized to arrange and contract for diplomas and medals for the use of the society.

Resolved, That the president, Messrs. Ross, Webster and Francis be a committee to examine Dr. W. B. Egan's osage orange hedge, and that they report upon the same.

Resolved, That the society grant Danforth Johnson a diploma for his model for a three-flange tread and car wheel—"a life saving improvement."

On motion of S. Francis, the following resolutions were adopted:

Resolved, That on closing our arduous duties, we desire to express our obligations to the citizens of Chicago, for their kindness, liberality and hospitality towards the great mass of strangers who visited the city on the occasion of the state fair. We cannot forget the unwearied efforts and attentions of the committee of reception, in providing places for temporary sojourn to those distinguished citizens of other states who were present at our great anniversary exhibition.

Resolved, That the mayor and other city authorities, in seconding all our efforts to make this exhibition worthy of Chicago and Illinois, should and do receive our most profound thanks. Their assistance was absolutely necessary to the undertaking, and it was at all times and under all circumstances effectually and liberally awarded to the executive committee.

Resolved, That the Mechanics' Institute, in assuming the work of preparing the buildings and other necessary fixtures on the ground, for the various objects of the exhibition, and the energy they exercised in their completion, entitle that body to the strongest expression of our obligations to them. The citizens of this city may well be proud of their "sons of labor," whose exhibitions of skill, taste and well-directed labors were one of the great features of the exhibition. We desire to record the expression of the deepest thanks of the committee for the various contributions by which the mechanics of Chicago have added interest to the fair.

Resolved, That while we feel that the late exhibition of the Illinois State Agricultural Society has been most successful, we are gratified to acknowledge that this has been the result of contributions, in various articles, by citizens from almost every locality of the state. It was a triumphant exhibition of the farmers' taste, skill and success in breeding stock, in the growing of grains, fruits and vegetables; and of the genius, science and skill of those engaged in all the industrial arts.

Resolved, That we feel an entire conviction that the late gathering of the industrial masses in this city, from the various and distant portions of Illinois, will tell on the business and future prosperity of Chicago. Men have been here from nearly every portion of the state, who had not before visited Chicago, and who were not aware of

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acquaintances then made will in future extend and increase its great and growing business, influence and wealth. The cities of Illinois belong to the people of Illinois. It should be our pride, as it is our interest, to promote their welfare.

Resolved, That the favors extended to the visitors of the fair, and to the vast number of people who visited the fair, by the various railroad companies, were essential to its success. We feel and acknowledge their importance to us. We trust and believe that they will not be losers by their liberality. Whatever advances Illinois in wealth and improvements and increases her population, adds to the value of her railroads. We have a united interest. Our obligations are mutual. May their recognition be lasting.

Resolved, That we should fail in our duty should we refrain from expressing our obligations to the police furnished by the city. They were vigilant, and their faithfulness continued until the last hour. And we cannot forego the pleasure of stating here our admiration of the order preserved in the crowds of citizens who attended the fair, and remark, with feelings of the highest satisfaction, that we did not witness a single case of intoxication on the fair grounds. Let this be told to the honor and glory of Illinois and Chicago.

Resolved, That the kindness and attention which the committee have received, while sojourning at the Tremont House, from its proprietors, Messrs. Gage Brothers & Drake, and their gentlemanly clerks, Messrs. E. H. Wentworth, F. W. Barnham, H. H. Hamlin and C. A. Phelps, call for our warmest acknowledgments.

Resolved, That this committee, with the highest regard for each other, and with the determination that their efforts shall be directed onward for the development of the agricultural, mechanical, mercantile and commercial prosperity of our state, do now adjourn, to meet in Springfield, on Monday, the 9th of January next.

H. C. JOHNS, *President.*

S. FRANCIS, *Recording Secretary.*

OFFICE OF STATE AGRICULTURAL SOCIETY, OCTOBER 15, 1855.

The executive committee of the state agricultural society, being fully convinced of the practicability of successfully cultivating the osage orange plant into a protective hedge, take great pleasure in recommending to the farmers of Illinois, and to all who desire to settle on her beautiful prairies, to plant and cultivate their hedges in accordance with the rules laid down in the best written treatises on the hedge plant. Experience has shown that the result of much

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RAILROAD ACTION.

Early in April, 1855, letters were addressed, by the corresponding secretary, to the various railroad companies of the state, and those out of it, whose lines enter the city of Chicago.

Col. Henry Farnum, president of the Rock Island road, voluntarily, and without consultation with other companies, offered the *free* use of that line for animals and articles on exhibition, and *half-fare* tickets to our visitors. This, on the face of it, was a more liberal proffer than the final terms of other lines in regard to visitors, though some of them complained of the restriction in regard to time.

All the other roads of the state agreed to the terms proposed by the Illinois Central company, replying to the letters of the society in terms of sympathy and interest, much in the spirit of the letter from Col. Mason, below, which is given as a sample of the whole.

The editor (then corresponding secretary of the state society) cannot find words to express his grateful appreciation of the prompt action and official courtesy of the superintendents of railroads in the state of Illinois; and though lines out of the state were not put on the footing of our own in regard to the fair, all favors asked were freely accorded to our officers and assistants.

R. B. MASON'S LETTER.

OFFICE ILLINOIS CENTRAL RAILROAD COMPANY,
Chicago, April 19, 1855.

DR. JOHN A. KENNICOTT,

Corresponding Secretary State Agricultural Society:

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companies, feel we owe to the state agricultural society, and to assure you that we shall cordially join in assisting to promote its objects and its welfare, so far as it can be done consistently with the well understood obligations to the state and the stock and bond holders, and without departing from general rules in such cases governing the action of the railroad interest of this vicinity.

And to carry into practice these professions of sympathy and good feeling, we propose—

1st. To run trains at about half fare over such portions of our line as we may think justifiable, for the accommodation of visitors going and returning from the fair, and to continue them to its close.

2d. To carry all cattle, stock, produce, specimen articles, and everything intended for exhibition at the fair, *free* both ways over our own line; *the party forwarding, in all cases, acting as his own insurer, and signing a special contract to that effect*, and paying infreight in advance; which prepayment will, however, be refunded, and the articles, stock, etc., returned *free*, on proof of exhibition at the fair, by certificate from the secretary of the society.

3d. Though this point is not touched upon in your letter, I venture to propose that we will, in case you choose a spot of ground on our line south of this city for fair grounds, run trains from our passenger station house, near Michigan Avenue, to the fair, hourly, during the middle of the day, and run all trains necessary to carry visitors early and late in the day during the continuance of the fair, at 25 cents a trip.

4th. Referring to that portion of your letter which suggests the active co-operation of this company, through its station agents, along its extended line, in bringing forward an interesting show of the natural products of the state, I take pleasure in informing you that we are ready to adopt and carry out your suggestions. If you will prepare notes for a letter of instructions, they shall be embodied in a circular to agents on the road, and an endeavor shall be made to impress upon them the importance of a zealous and intelligent action with regard to the object in view. If, in order more effectually to carry out this scheme, you should think it judicious or advisable to send a special agent of the society over our road to make suggestions and explanations on this matter, and to

I inclose for yourself a *free pass* over our whole line, for the balance of the year, and have sent such another to your president, and others to each of the gentlemen named in your letter, to be used only when traveling to attend public and advertised meetings of the society.

Trusting success may crown this undertaking of your society, and reassuring you of the hearty co-operation of this company in every measure tending to develop the resources of the state,

I am, with great respect, sir,
Your obedient servant,
R. B. MASON,
Chief Engineer and Gen'l Sup't Illinois Central Railroad.

The society having appointed Robert Kennicott agent for collecting specimens of natural history, &c., the following circular was distributed along the whole line, and Mr. Kennicott acknowledges his indebtedness to the railroad company, its employees, agents and friends, for much official courtesy and personal kindness in the prosecution of his labors and duties.

The collection made by the railroad interest, together with the private collections exhibited at the fair, will be found noticed in the report of the chairman of the committee on natural products, P. R. Hoy, M. D., of Racine, Wisconsin, well known to men of science as the best zoologist of the far west.

CIRCULAR.

OFFICE OF THE ILLINOIS CENTRAL RAILROAD COMPANY,
Chicago, May 28, 1855.

To the agents and employees of the
Illinois Central Railroad Company:

GENTLEMEN—The state agricultural society of Illinois has made arrangements to hold an annual fair in Chicago, early in October of this year, and desires the co-operation of this company to bring

that its prosperity is bound up with that of the state, has readily agreed to carry out the suggestions of the state agricultural society.

To this end the following memoranda has been prepared by Dr. John A. Kennicott, the corresponding secretary of the state agricultural society, for the guidance and instruction of the agents of this company:

MEMORANDA.

"SOILS.—From the face of a clean, fresh, perpendicular cut—made with a spade—take from one to four lbs. of soil, from *just below the surface*, and a like sample of that just above the subsoil—noting the depth of each. Then take of the subsoil in the same way; note carefully the entire depth of apparently workable and fertile soil, and whether the specimen be from rolling or level prairie, or woodland—virgin, or old unmanured field. Put up the samples in strong paper, carefully labeled, to be exhibited in glass jars at the fair, and for future analysis. Note, particularly, the immediately underlying strata, as shown in cuts for road bed, wells, &c., and the drainage capacities of the section from which the soil has been taken. Look, also, in this connection, for beds of peat, marl, pottery and brick clay, sand, gravel, &c., and put up noticeable samples.

"ROCKS.—Get newly fractured and clean specimens of the various quarries—from cuts and tunnels, ravines and stream banks. Note workable condition, distance from railroad, bearing and *dip* of rocks in place, thickness of strata, &c., wherever exposed, and easy of observation.

"MINERALS.—Of the so-called 'minerals'—marble, fluor, beautiful quartz sand, and perhaps kaolin or porcelain earth, will be found south, and specimens of everything in this line should be gathered, and the locality and other circumstances carefully noted.

"*COAL* should not be neglected—though, doubtless, individuals *will exhibit* specimens—but it is very desirable that the richness of beds on the company's lands should be demonstrated when

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shales and slates is like opening the leaves of a book,' written by the hand of the Creator. In this connection, it will be well, too, for you to look for evidences of aboriginal and early French settlement, and preserve arrow heads, bits of brick, &c.

"ORES, in quantities for testing, should be secured, where not already worked.

"CORALLINES, and other curious mineral formations should be preserved. Specimens of all *crystalized* minerals, you will, of course, preserve, when found in your vicinity. All should be carefully labeled, by pasting on slips of paper, or writing on the envelop. Pack away in papers, free from dust, and when forwarded, let the cases be full, and every interstice therein should be filled with some soft and clean material, while packing, to prevent fracture or abrasion.

"THE FLORA AND FAUNA.—Look well to the indiginous plants of your neighborhood. Botanists read the character of the *soil*, and often much of the history of the country, in its trees and plants. Procure specimens of woods, with the bark on one side, when practicable. Sections of old rails, posts, plank, &c., when the species, the exposure and the length of time in use can be ascertained, will prove of great interest to the farmers and mechanics. Get sprigs of trees and shrubs, with the leaves, and, when practicable, the seeds attached. Collect and press, between folds of absorbent paper, (old newspaper will do,) specimens of native plants, especially *all* the grasses, both native and introduced. An occasional exposure of the folded papers, containing the specimens, to the sun or air, to dry them, will obviate the necessity of changing the papers. Common, and especially local name, as well as botanical designation, when known, should be attached to each plant. Perishable fruits, native and cultivated, may be preserved in jars of pure alcohol, or, when in condition, just before the fair, they may be packed in cotton, or dry *oak* saw dust, in full boxes. Edible nuts and roots should also be gathered.

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abdominal cavities, to permit the entrace of the alcohol. Such alcoholic specimens can be kept in closely stopped, wide-mouthed bottles, cases, jars or kegs, and must be *closely filled*, to prevent chafing, before forwarding. The labels of these, when attached to single specimens, should be written on parchment or leather, and *dried* before immersing. Shells should, when practicable, be collected alive, and cleaned by immersing in boiling water, when the flesh will part readily."

Mr. Robert Kennicott has been commissioned by the state agricultural society to assist in carrying out this plan, and he will visit every station on the road, in the course of the season, and give such information and offer such advice and assistance as may be needed for the correct understanding of the circular.

And that there may be no mistake as to what is required of the station agents of the company in this connection, each for himself will be imperatively required—

1st. To forward specimens of the soil in his neighborhood, according to the directions given in first paragraph of Dr. K.'s memoranda.

2d. To forward a sample of wheat, tied up in a bundle of not less than six inches in diameter at the band, plainly labeled, giving time of ripening, with county, township, one-fourth section and range of locality where gathered; ditto of corn; ditto of oats and barley and rye, when raised in the vicinity.

3d. To forward handsome and sizable specimens of coals, clays, rocks, ores, minerals and fossils and natural productions of a kindred character, when to be found in the neighborhood, giving place from where taken, with county, township, section and range.

4th. And to forward, under the advice and direction of Mr. Robert Kennicott, such special natural productions of your locality as he may direct, such as natural and tame grasses, plants, fruits, nuts, roots and vegetables, &c., &c."

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the contributor; and the services of such agents and employees of this company as forward creditable collections will be fully acknowledged and adequately remembered.

Trusting there will be a hearty endeavor on the part of the agents of this company to bring forward a handsome show of the products of the state of Illinois, and that every employee of the company will feel himself personally interested in the result, I commit its success to their hands.

Very respectfully,

R. B. MASON,

Chief Engineer and General Superintendent.

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INVITED GUESTS OF THE SOCIETY.

Shortly after the arrangements for holding our third annual fair, in the city of Chicago, had been measurably perfected, Mr. W. H. Osborne, one of the directors of the Illinois Central Railroad, in connection with Col. Mason, suggested the propriety of our inviting an unusually large number of eminent agriculturists and men of science, from without the state, as guests of the society, during the fair, to whom the railroad company would give an excursion through the state, immediately before or thereafter, as we should determine.

The following circular letters, together with 150 free passes, in blank, were furnished to the corresponding secretary of the society; and the subjoined letter, indorsing them, was addressed to the various gentlemen designated, many of whom were in attendance during the fair, and expressed the liveliest gratification and most flattering opinions in regard to our show and the vast natural resources of our state.

OFFICE OF THE ILLINOIS CENTRAL R. R. COMPANY,
No. 48 Michigan Avenue, Chicago, Sept. 3, 1855.

DEAR SIR—The Illinois Central Railroad Company, desirous of promoting the interests of agriculture and the mechanic arts in the west, and to further insure the prosperity of the state of Illinois, and to secure every legitimate advantage to its bond and stock holders, by showing to appreciating parties, so far as may be, the value of its lands and line, has united with the Illinois State Agricultural Society in an attempt at collecting a few of the natural and culti-

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ments and high position in kindred societies to attend at Chicago, I have the honor to request your acceptance of the inclosed card, which will enable you to make an examination, without charge, of the whole length of this company's road.

I am, very respectfully,
Your obedient servant,

R. B. MASON,
Chief Engineer Ill. C. R. R.

OFFICE ILLINOIS STATE AGRICULTURAL SOCIETY,
Chicago, Sept. ——, 1855.

DEAR SIR—I have the honor of presenting you the inclosed cards, and expressing the earnest desire of the executive committee of the Illinois State Agricultural Society to have you attend our annual fair, in Chicago, October 9th to 12th, and also a proposed excursion through the state, immediately after the fair.

We shall have a committee of reception at the Tremont House, or directions awaiting you there, and trust to be able to procure you comfortable lodgings in some private family, and, in other ways, make your visit pleasant and interesting.

The number of railroad tickets being limited, our desire to have a full attendance at the excursion, will excuse my soliciting an early reply, directed to me, at Chicago. Respectfully,

JOHN A. KENNICOTT,
Cor. Sec'y Ill. State Agricultural Society.

The following circular was addressed to the EDITORS OF NEWSPAPERS, in the state, and met a very liberal and efficient response:

OFFICE ILLINOIS STATE AGRICULTURAL SOCIETY,

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interests of the state and the people, in this progressive age of ours. And it is not unknown to you that our society has undertaken to get up a state fair worthy of the state of Illinois and the times, rather than in accordance with precedent, and the state of our treasury—left empty by the accidental failure of our appropriation bill, in the last legislative assembly. We have, therefore, the more reason to call on you, as I now do, by authority of our executive committee, asking you to inform your readers of the near approach of their annual state jubilee, October 9th to 12th, assuring them that, if they will but *try*, they can beat every body, in some one thing or more; and that through our arrangements in Chicago, and the exceedingly liberal proffers of all the railroads of the state, they will now be able to see more, learn more and enjoy more, for the money expended, than at any former state fair here or elsewhere.

And, my dear sir, we want you, also, at the fair. We are specially inviting thereto many eminent naturalists, heads of scientific bureaus, officers of foreign associations, members of the press, &c., &c., to whom we wish to present you, and whom we wish you to help entertain and inform in regard to the immense natural resources of your portion of our beautiful prairie state. Come, we pray you—we will do our best to make your visit agreeable; and we hope to be able to procure lodgings, in private families, for all our guests, though we cannot promise to entertain them all free of expense. This desideratum must be left to the press and the citizens of Chicago.

But, for a little longer, you must work, as we do, for the good of the producing classes, hoping that the time will soon come when, as reading and thinking men, they will give you an adequate professional support, and us their applause.

Cordially and respectfully your friend,

JOHN A. KENNICOTT,

Corresponding Secretary.

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LIST OF INVITED GUESTS.

Hon. Ashbel Smith, Galveston, Texas.
Prof. J. C. Holbrook, Charleston, South Carolina.
Hon. Dan'l Lee, Augusta, Georgia.
D. Redmond, Augusta, Georgia.
Richard Peters, Atlanta, Georgia.
Frank Ruffin, Shadwell, Virginia.
Wm. Evans, Ed. Journal, Montreal, Canada.
G. Buckland, Ed. Agriculturist, Toronto, Canada.
Wm. McDougall, Ed. Agriculturist, Toronto, Canada.
Jas. Dougall, Windsor, Canada West.
Dr. E. Holmes, Ed. Farmer, Augusta, Maine.
H. P. Byram, Agr. Soc. Ed. Louisville Journal, Louisville, Kentucky.
Col. Lewis Sanders, Grass Hills, Kentucky.
Brutus Clay, Pres't Bourbon County Agr. Soc., Paris, Kentucky.
Robt. W. Scott, Frankfort, Kentucky.
Wm. Warfield, Lexington, Kentucky.
Chas. S. Gerrard, Paris, Bourbon county, Kentucky.
Cassius M. Clay, Richmond, Madison county, Kentucky.
Prof. Louis Agassiz, Cambridge, Massachusetts.
Thaddeus William Harris, M. D., Cambridge, Massachusetts.
Hon. Marshall P. Wilder, Boston, Massachusetts.
C. L. Flint, Sec'y State Agr. Soc., Boston, Massachusetts.
W. S. King, Sec'y U. S. Agr. Soc., Roxbury, Massachusetts.
Col. Moses Newell, West Roxbury, Massachusetts.
R. P. Waters, Salem, Massachusetts.
Harvey Dodge, Salem, Massachusetts.
Henry W. Clapp, Greenfield, Massachusetts.
Hon. John Brooks, Princeton, Massachusetts.

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C. M. Hovey, Ed. Hort. Magazine, Boston, Massachusetts.
J. W. Proctor, Danvers, Massachusetts.
Allen W. Dodge, Hamilton, Massachusetts.
Hon. Jas. H. Duncan, Haverhill, Massachusetts.
E. Dyer, jr., Sec. State Agr. Soc., Providence, Rhode Island.
Thos. Kennicott, Worcester, Massachusetts.
F. Holbrook, Pres't State Agr. Soc., Brattleboro, Vermont.
J. A. Beckwith, Sec. State Agr. Soc., Middlebury, Vermont.
S. H. Huntington, Pres't State Agr. Soc., Hartford, Connecticut.
Henry A. Dyer, Sec. State Agr. Soc., Brooklyn, Connecticut.
Chas. B. Calvert, Riversdale, near District Columbia, Maryland.
L. F. Coppersmith, esq., Fredericktown, Maryland.
O. Horsey, Baltimore, Maryland.
M. T. Gladsborough, Easton, Talbot county, Maryland.
J. H. Alexander, Baltimore, Maryland.
Brantz Meyer, Baltimore, Maryland.
Hon. Jas. A. Pierce, Charleston, Maryland.
L. Sands, Ed. Agriculturist, Baltimore, Maryland.
Prof. Jas. Higgins, Baltimore, Maryland.
Sam'l Cheever, Pres't State Agr. Society, Waterford, New York.
Benj. P. Johnson, Sec. State Agr. Soc., Albany, New York.
B. B. Kirtland, Albany, New York.
Wm. Kelley, ex-Pres't State Agr. Soc., Rhinebeck, New York.
E. G. Fail, 181 Front street, New York, New York.
L. G. Morris, Fordham, New York.
Luther H. Tucker, Albany, New York.
R. L. Allen, Ed. Agriculturist, New York, New York.
Orange W. Judd, Ed. Agriculturist, New York, New York.
P. Barry or Geo. Elwanger, Rochester, New York.
D. D. T. Moore, Ed. Rural, Rochester, New York.
Lewis F. Allen and lady, Black Rock, New York.
Elisha Geer, Hartford, Connecticut.
E. P. Prentice, Albany, New York.
Chas. V. Benthuysen, Albany, New York.
Chas. Downing, Newburg, New York.
Dr. L. W. Grant, Newburg, New York.
Prof. J. J. Mapes, Ed. Working Farmer, New York, New York.
Jas. Vick, jr., Rochester, New York.

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Dr. Asa Fitch, East Greenwich, New York.
Gov. N. B. Baker, Pres't Agr. Soc., Concord, New Hampshire.
S. N. Bell, Manchester, New Hampshire.
Henry F. French, Exeter, New Hampshire.
Brooks Shattuck, Pres't Hillsboro Agr. Soc., Bedford, New Hampshire.
O. F. R. Waitt, Claremont, New Hampshire.
Isaac C. Flanders, Manchester, New Hampshire.
James O. Adams, Sec. Hillsboro Agr. Soc., Manchester, New Hampshire.
Morton McMichael, Philadelphia, Pennsylvania.
Jno. Jay Smith, Germantown, Pennsylvania.
Jas. Gowen, Pres't Agr. Soc., Chesnut Hill, near Philadelphia, Pennsylvania.
Dr. A. L. Elwyn, Cor. Sec. Agr. Soc., Philadelphia, Pennsylvania.
Dr. Wm. D. Brinckle, Philadelphia, Pennsylvania.
John Cassin, Acad. Nat. Sciences, Philadelphia, Pennsylvania.
H. C. Hansen, Ed. Florist, Philadelphia, Pennsylvania.
Chas. Kessler, Reading, Bucks county, Pennsylvania.
John L. Le Comte, M. D., Philadelphia, Pennsylvania.
Dr. Jos. Thomas, No. 192 Sixth street, Philadelphia, Pennsylvania.
J. P. Comegys, Dover, Delaware.
Daniel Cummins, Smyrna, Delaware.
Henry Dupont, Wilmington, Delaware.
L. E. Berkmans, Plainfield, New Jersey.
Mr. Emile Berkmans, Plainfield, New Jersey.
J. Hatfield Frazee, Somerville, New Jersey.
A. Mailliard, Bordentown, New Jersey.
J. G. Totten, U. S. A., Washington, District Columbia.
Jos. Henry, Sec. Smithsonian Inst., Washington, District Columbia.
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Dr. Jno. A. Warder, Cincinnatti, Ohio.
Robt. Buchanan, Cincinnati, Ohio.
A. H. Ernst, Cincinnati, Ohio.
F. W. Rennick, Bloomfield, Ohio.
J. C. Holmes, Detroit, Michigan.
Andrew Y. Moore, Pres't State Agr. Soc., Schoolcraft, Michigan.
Linus Cone, Troy, Michigan.
Samuel M. Bartlett, La Salle, Monroe county, Michigan.
Gov. K. S. Bingham, Green Oak, Livingston county, Michigan.
R. F. Johnson, Ed. Michigan Farmer, Detroit, Michigan.
E. W. Edgerson, Pres't State Agr. Soc., Genesee, Wisconsin.
Dr. P. R. Hoy, Racine, Wisconsin.
Geo. O. Tiffany, Cor. Sec., Madison, Wisconsin.
J. P. Lapham, Milwaukee, Wisconsin.
Hon. Edward Bates, St. Louis, Missouri.
M. M. Marmeduke, Arrow Rock, Missouri.
Gov. Joseph A. Wight, Indianapolis, Indiana.
W. P. Blake, Washington, District Columbia.
Albert C. Ingham, Madison, Wisconsin.
Dr. Eben Wight, Boston, Massachusetts.
Col. B. Hodge, Buffalo, New York.
Gov. Grimes, Burlington, Iowa.
Henry Ward Beecher, Brooklyn, New York.
D. J. Browne, Washington, District Columbia.
Com. Shubrick, U. S. N., Washington, District Columbia.
Col. Kearney, U. S. A., Washington, District Columbia.
C. C. Goodrich, Utica, New York.
Mark Miller, Madison, Wisconsin.
Lawrence Young, Louisville, Kentucky.
Wm. R. Prince, Flushing, L. I., New York.
H. P. Hanford, Bristol, Elkhart county, Indiana.
Geo. Graham, jr., Cincinnati, Ohio.
Capt. Geo. Barrell, Brooklyn, New York.
Col. Musgrave, Sulphur Springs, Ohio.
Chas. Carpenter, Kelley's Island, Ohio.

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CORRESPONDENCE, FAIR 1855.

The editor, having determined against publishing all the available correspondence of the society, has taken, at random, the half dozen replies following from those invited from other states to attend our fair at Chicago and the proposed railroad excursion thereafter. These few replies are a fair sample of the whole, and are given to show the general appreciation of the principle then adopted, and the feeling in regard to our society and state, as well as the great west at large.

From J. H. Alexander, Maryland.

JOHN A. KENNICOTT, ESQ.,
Cor. Sec., etc., etc.:

MONTROSE, *13th Sept.*, 1855.

DEAR SIR—I have the honor to acknowledge the receipt, yesterday, of your favor of the 5th, inclosing tickets for the Illinois state agricultural fair, which followed me from Baltimore to an estate here, where I had come for recreation.

It would give me very great pleasure to be able to acknowledge your courtesy in person; but unfortunately for that, engagements already made will take me elsewhere during the period of your exhibition, and thus deprive me of an opportunity both of improvement and satisfaction.

What is deferred, however, is not necessarily lost; and if a hearty appreciation of the objects of associations like the one you

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From Allen W. Dodge, Massachusetts.

HAMILTON, (Mass.,) *Sept.* 12, '55.

JOHN A. KENNICOTT, ESQ.,
Sec'y Ill. State Agr'l Society;

DEAR SIR—I have received from you a card of invitation to your fair, in October, accompanied by one from the Central railroad, for a trip on their line, directly after the fair. It would give me great pleasure to see, with my own eyes, your magnificent west, destined to be—if not now—the garden of the world. I have been a constant reader of the reports of the Michigan, Indiana and your own state society, and have been profoundly impressed with the agricultural resources of those states, and also and equally with the zeal, enterprise and skill of the farmers who are engaged in developing those resources. My regret is great that my official business, as treasurer of our county, will not admit of my being absent long enough to visit you. Accept my thanks, both for your society and the railroad, for the invitation you have extended to me.

Very truly yours,

ALLEN W. DODGE.

From Daniel Cummins, of Delaware.

SMYRNA, *October 8th*, 1855.

MY DEAR SIR—Your invitation to attend the Illinois State Agricultural Society, postmarked 5th ultimo, accompanied with a free ticket over the Central railroad, came duly to hand. For the honor please accept my thanks. My intention and arrangements were made to have met you this day, but owing to the sudden and severe indisposition of Mrs. Cummins on Thursday last, the 4th inst., I was compelled to abandon the tour, as well two or three gentlemen, who designed taking the trip, and adding to it a tour through

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enterprise, for which you deserve high commendation. Please present my highest regards to the executive committee for the honor extended, and say to them if in 12 months hence such an inducement should be offered me I certainly shall make another effort to attend.

I have for the past two years been very desirous to procure a machine, to be worked by one horse, to cut down corn, and, if I mistake not, saw such a machine upon exhibition at the Crystal Palace, New York. Frequent inquiries have also been made of me for such an article. Information has reached me they were manufactured and sold in your state. If such should be the case no doubt they will be exhibited at your fair. In case they are, and it would not be intruding too much upon your valuable time, it would confer upon me (as well as many others) a favor if you would have me placed in possession of a general description of the machine, with price, and instructions how to obtain them.

Please excuse the length of my communication, as I yield to the disappointment with much regret.

Yours very resp'ly,

DANIEL CUMMINS.

To Mr. John A. Kennicott,
Cor. Sec'y., &c.

From Professor Nash, of Massachusetts.

Amherst, *September* 14, '55.

John A. Kennicott, esq.,
Sec. Ill. State Ag. Society:

Dear Sir—Please accept my hearty thanks for your kind invitation to be with you at your forthcoming show, and be assured that nothing would afford me greater pleasure, were it possible. As circumstances out of my control will probably prevent my en-

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be on hand, hoping that you will consent to receive me at the eleventh hour.

I will thank you to communicate my regards to R. B. Mason, esq., and assure him that a ride through your state on the great Central road would afford me the greatest pleasure, but that probably I shall not be able to enjoy it. This, if it is convenient for you to see him; if not, please drop the accompanying into the office for him.

Very respectfully yours,

J. A. NASH.

From Edward Bates.

St. Louis, *Sept.* 10, 1855.

To Dr. John A. Kennicott,

Cor. Sec. Ill. Ag'l Society, at Chicago:

Dear Sir—I have just had the honor to receive your invitation to attend the fair of the Illinois State Agricultural Society, and, as requested, I hasten to send my answer.

I grieve to say that this is the second time I have been thwarted in my strong desire to witness the exhibition of your very interesting and useful association. My official duties will begin on the second Monday of October, and will require my presence in St. Louis every day till mid-winter, and so I cannot possibly indulge myself in a visit to Chicago from the 9th to the 12th of October, (the time expressed in your invitation,) nor avail myself of the free ticket of the Ill. Central R. R. from the 8th to the 20th of October, so kindly and liberally sent to me by that great railroad company.

It is a great disappointment to me to be obliged to forego the pleasures so courteously and generously offered me, both by the agricultural society and the railroad company. Although I cannot be with you to be an eye-witness of the amazing growth in quantity and improvement in quality of your productions, I can mingle my

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With my best thanks for the courtesy that has been so kindly extended to me, I remain, sir,

Most respectfully,

Your ob't serv't,

EDWARD BATES.

From John Brooks.

PRINCETON, *Sept.* 13, 1855.

DEAR SIR—I have your note of the 3d instant, inviting me to the Illinois state agricultural fair, at Chicago, and to partake of the pleasures of an excursion over the Illinois Central Railroad. Nothing would delight me more than an excursion over your vast prairies and a visit to your magic city; and nothing can be more useful, both to the east and the west, than frequent interchange between our farmers and mechanics of civilities on such occasions as your present enterprise affords. Illinois has just begun to feel the impetus of her vast system of railroads. The opening of your vast prairies to the advantages of a good market, and the influence it will have upon the growth of your city of Chicago, will cast into shade all previous prophecies, and outstretch the hopes of the most sanguine friend of our free western states.

I regret exceedingly that engagements are such as to render it impossible for me to accept your kind invitation.

Respectfully yours, &c., &c.,

JOHN BROOKS.

JOHN A. KENNICOTT, ESQ.,

Cor. Sec. Ill. State Agricultural Society.

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ADDRESS OF HON. D. J. BAKER,

AT THE STATE FAIR OF THE ILLINOIS AGRICULTURAL SOCIETY, ON THURSDAY, OCTOBER 11, 1855.

Mr. President and Gentlemen of the State Agricultural Society—We read in Holy Writ what we see disclosed in the book of nature, spread open for our perusal, that "the earth is the Lord's and the fullness thereof; the world and they that dwell therein;" and from the same source we learn that man is his tenant and steward, commissioned to be its monarch, and with absolute dominion to govern and control it; to levy unlimited contributions and convert everything in it to his own use. Although the earth is "full of the goodness of the Lord, and is graciously visited and watered by him," still, in this important relationship to the Creator of all things, it was in the beginning irrevocably decreed, that man "in the sweat of his brow should eat bread," and "that, if any would not work, neither should he eat." In obedience to this decree, the land, naturally "full of God's riches," is cultivated and "yields her increase," and "out of it cometh bread," and good husbandry and favorable seasons insure "plenteous years and cause the earth to bring forth by handfulls."

The taste for agricultural puruits and country scenery is more general than for other employments and exhibitions. The culture of the earth is the only trade which man has ever been commanded by his Maker to exercise, and He has surrounded it by peculiar attractions. We are naturally fitted for the country rather than the city. So grateful are the colors of green and blue to the eye, that it can endure no others, for any considerable length of time, without painful sensations. Our sense of seeing is never more delighted than by its upward gaze into the clear blue heavens, or abroad upon the green earth. In the happy garden allotted to our great progenitors, commonly described hill and dale, forest

"The poet's eye, in a fine frenzy rolling," never bodies forth a scene of perfect happiness unaccompanied by like surroundings. The "goodly land flowing with milk and honey" was, to the ancient Jew, the type of the happy abode where he should rest, forever blest, after the journey of life was ended. This taste, natural as it is general, accounts not, however, for all the interest felt for agricultural prosperity. Our bread, the staff of life, depends on it, and its success is the basis of the general welfare, and the industry of all is supported by its fruits. But, unaided by the hand of labor, the earth, though naturally teeming with exhaustless riches, would be overspread by a savage and unprofitable wildness, or would exhibit a cheerless expanse of naked sterility. Labor, too, deprived of the instructions of science, deduced from experiment and observation, is, at best, only a struggle without arms, in the dark, with an unknown foe. If it prevail, it is by mere chance, and the victory may prove to be bootless, and not worth achieving.

Not unfrequently half the expense incurred in agricultural pursuits blindly followed is lost, and always the return, if any reward the toil, is fortuitous. Moreover, such blind efforts are liable to be not barely ineffectual in the line of their direction, but directly adverse in their operation to the attainment of the end in view. No nation, then, deriving its support immediately from the fruits of the earth, can be looked upon as highly enlightened, if destitute of the knowledge of improved agriculture, or unacquainted with the use of the labor-saving machines and implements devised by science and skill for facilitating its operations; and the mental and moral elevation of a people may usually be determined by the state of their agriculture. If ignorant of this art, ordained to be the principal employment of the human family, they can hardly be expected to know the earth's great riches and vast powers of production, which, by proper culture, can be rendered inexhaustible. In such darkness they are not a proud advance beyond "the brutes that perish."

Our wants, whether real or imaginary, are the most potent stimulants to exertion, and awaken and call into action our mental energies. Men task their bodily powers for the accomplishment of their desires. For the satisfying of their wants, always increasing by being gratified, the earth is taxed with an assessment, which

found in the states and nations where the most improved system of agriculture prevails. It is the foundation of manufacturing, since the productions of nature are the materials of art. It is also the support by affording the primary elements of trade and commerce. For man's subsistence and comfort it is the benignant mother of plenty. In the lap of plenty repose virtue and contentment, and the horn of plenty is largest and fullest where the best modes of tillage are understood and practiced. These are not all. Agricultural pursuits are the handmaids to innocence, peace and self-satisfaction—without fear—without reproach; and are among the most honorable employments in which we can be engaged. They awaken in the minds of their votaries a sense of the noblest condition—the completest independence, and should, as they have of late, call to their assistance the highest knowledge, the deepest and most careful scientific research, and the inventions of genius, perfected by the hand of skill. True, uninformed, unthinking force moves the plow, the cart and the machines for mowing, reaping and threshing; but science, applied to use by genius, is tasked in devising and directing their construction and prescribing their modes of operation. I am aware that many—too many—in all countries and ages, have been found who look upon agriculture as a low, menial employment, unworthy the better born and genteel portion of the community. This feeling in any is to be deplored as an evil in the state; finding, however, some alleviation in the fact, that its cause is confined to those of a perverted taste, who contribute least to the wealth, well-being and happiness of society, and whose personal influence is not extensive; and among us, at least, is fast wearing away, and wherever human rights are duly respected, and a true standard of merit has been erected, will soon wholly disappear. The remark has become trite as true, that he who causes two blades of grass to grow where only one grew before, is a public benefactor. The name of the inventor of the plow has not been handed down to us, probably because this invaluable instrument of production has, from a rudely sharpened piece of wood, been for ages gradually improving, and ultimately attaining its present usefulness and perfection. If any single individual had been entitled to the merit of presenting it to the world in the form of usefulness it now possesses, his name would have been canonized, and his brows circled with honors as enduring as those ever awarded to Ceres or Vesta.

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and America originally came, one of the three most important duties enjoined upon man was "*to plant a tree.*" The present age, it is generally conceded, is far in advance of all its predecessors in improvements, in the utilitarian arts and agricultural implements; and labor-saving machines have been perfected to such a degree that we may fancy the time is not far distant when the ground will be cultivated, and its crops secured and prepared for use without the help of man; thus changing his condition from toil to unmixed fruition.

These views are general, as all must be, to a greater or less extent, presented on occasions like this. Of course I am not expected to instruct you in practical farming. If I were competent to the undertaking, this is not the occasion for its performance. A treatise on the breeds of cattle, hogs and sheep, or the pedigree of horses—the processes of making butter and cheese, or the cultivation of wheat, Indian corn, rye, oats, barley, potatoes and other valuable crops, the raising of fruits, their several varieties and the goodness and relative importance of each, would be ill-timed and out of place. My aim is to be more general, if not more useful. The task assigned me will have been executed, I presume, if I lay before you a few of the facts and considerations tending to show that the art which you profess admits of improvement, and will richly reward a vigorous effort to that end. In doing this, I shall present a brief outline of the importance of the cause in which the society is engaged; give an enumeration of some of the objects which it may accomplish, and advert to the improvements which have already been made as well as those attainable in the business of agriculture. In the discussion of these topics, our own state, in its past, present and future agriculture, furnishes an ample field for interesting and profitable contemplation, and will more especially engage our attention.

In all civilized countries, among the benefactors of our race, they have always occupied the foremost rank whose time and attention had been given to the tillage of the earth and the study of the means whereby agricultural production might be most successfully and easily increased. This is natural, and as it should be; and when Washington retired from public life to his farm, his picturesque and charming country seat on the Potomac, he yielded to a very natural inclination, and his praises for this, though

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power predominates in some temperaments, but love for the simple pleasures of rural life finds a resting place in the minds of the greater number; yet this natural taste, it is manifest, accounts not for all the interest taken in the prosperity of agriculture. On it, likewise, mainly depends the subsistence of the family of man, as also the existence of commerce and manufactures.

Before inviting your attention to the present of our state, in an agricultural point of view, it seems proper that I should take a rapid glance at its past history. By so doing we may be better able to form an accurate judgment of the future, about to be ushered in with auguries the most auspicious. The earliest civilized settlements within the limits of our state, and in fact in the valley of the Mississippi, were made at Kaskaskia, Prairie du Roche, St. Philips, Cahokia and some other places on the American Bottom, about the year 1682, by adventurers engaged in the fur trade with the Indian tribes—explorers from old France and a province in America, then called New France, a wide tract of country, undefined in its boundaries, and embracing, as was claimed, the Illinois country as well as the Canadas. The primary object of the French government, in its encouragement of these settlements, being the extension and maintenance of its jurisdiction over the territory, for the purposes of protecting and increasing this trade, they were intended rather as trading posts than colonies planted for the reclamation and agricultural improvement of a savage wilderness; but the fertility of its soil strongly invited these colonies to that which their necessities demanded—the cultivation of the land for obtaining their needful supplies of grain. For a number of years wheat was the only grain which they raised, and so successful was its culture at one time that considerable shipments of wheat and flour, as also of wine, from the native grapes, were made to France. Apples and pears, and perhaps some other fruits, met with an early introduction, and considering the small size of the settlements, were cultivated to a considerable extent—at least, fully equal to the demand for them. Some of the old pear and apple trees planted at an early day in and about these ancient villages may still be seen, exceeding a century in age, and

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which the orchardists have now to contend, were unknown, and never made their incursions into this region until some years after the organization of our state government.

The first settlers knew but imperfectly, and practised less than they knew, the arts of agriculture; in fact, it was very imperfectly understood in the mother country at the time of their emigration thence. The implements of husbandry then in use here were of the rudest description, and not adapted to extensive operations; yet, in despite of bad culture, the wheat grew, and sometimes, as I have said, afforded a surplus—a surplus nearly worthless, as the home demand was very limited, and its exportation to a foreign market was effected at a cost exceeding its value when it had arrived there. As few inducements to raise more than a sufficiency for home consumption existed, and this being easily accomplished, the improvements in farming were, during this listless and unenterprising period, few and of small importance. Indeed, a most determined repugnance to any, the least innovation, upon established practice, or the adoption of anything new in this department of industry, characterized our seniors of those days in the settlement of the country; and, long after these primitive times had passed away, and even after the territory of Illinois was numbered among the states of the Union, the idea of using the heavy, unwieldy bull-plow, when first brought to notice by some eastern speculator, as he was called, was indignantly frowned down by our farmers of that generation. They said their teams were not to be used up by forcing through the earth such a weight of wood and iron. Only a short time, they said, had elapsed since they submitted to the substitution of the bar-shear for the shovel plow. The former worked well, they admitted, and that it seemed to be some improvement; but although it was said there was reason in all things, surely there could be none in the bull-plow. So the subject was dismissed at that time, and a popular decree entered accordingly, but which was, not long after, reversed. Almost every inhabitant of these ancient villages was the owner in fee of a separate strip or piece of land lying in a large field, called the "common field" of the village, inclosed by a fence around the lands of all, lying side by side, and built and kept in repair by the joint contributions made by the several owners, proportioned to the number of French arpens owned by each within.

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was introduced, and, to a considerable extent, took the place of wheat—it being found to be a more certain crop, and it could be gathered more at the leisure of the producer, though the culture of the latter was not wholly discontinued. The stalk field, too, of the former afforded subsistence to the cattle and horses of the owner through the winter. Corn, from the time of its general introduction among the white settlers, continued to be raised, to the exclusion of other grains, without change of crop, on the same ground, until within the last thirty years, and such is measurably the case, even now, in and about the ancient French villages; and yet all this protracted period of time the crops thus raised rendered a fair return for the labor and money expended in their production. I do not say nor intend that change of crops was then deemed bad husbandry; but only that, for some, no doubt, sufficient reason, it was not practiced. The clothing used by the greater number was made from the skins of wild beasts, or the cloth manufactured by the inhabitants out of cotton of their own raising. Those skins got to be a kind of currency in the transaction of business and in the effecting of exchanges—the deer skin being the unit or highest denomination; those more valuable were rated at so many deer skins as were equivalent to the value of one of the latter, and those less valuable, as fractions of the former.

From the time of the cession by France to England, in the year 1763, of the territory on the east side of the Mississippi, embracing the state of Illinois, and afterwards, when Indian corn, being the principal grain raised, would not justify exportation, up to, and several years after, the organization of the state government, the inhabitants had no inducement to raise more than a sufficiency of grain for their own bread and food for their working horses and oxen—the residue of their stock being left to run at large and subsist in the range. Little besides furs, skins and peltries was sent abroad, and a surplus of corn or other grain, raised only to rot in the producers' fields or cribs—barns they had not—offered poor encouragement for the prosecution, on a large scale, of the business of farming. Cattle and hogs, as well as grain, were of value

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and cattle, not used for work, and their hogs, running in the range, if they were not, like the wild game of the forest, common to all, and liable to appropriation by the first taker, still were, like it, to be hunted and caught in order to be enjoyed. Troubled by few imaginary wants or desires for superfluities, their real ones were not numerous, and easily satisfied, provided their common fields, which were wholly upon the river bottoms, yielded their accustomed crops. Their hospitality and their improvidence were alike proverbial, and these might have been the distinguishing characteristics of their descendants to the present time, had not adventurers from abroad wrought a change by the abuse of the former; while the inundations of the Mississippi, particularly that in the year 1772, corrected the latter, by the severe admonition thus administered to them not to live "from hand to mouth," unmindful of the future. The hoe was not much used, and the spade was hardly known as an agricultural instrument. The plow then in use was not much better than the hoe for opening and stirring the ground, had it not been that the former was operated by horses and oxen instead of human hands. This was, for a long time, the agricultural aspect of our state, or rather the southern part, and that was the only portion then tenanted by the *pale faces*, and their villages or settlements were "few and far between." This state of things continued, with slow change for the better, until, about the year 1824, a large merchant flouring mill was erected and successfully operated at Kaskaskia, and when the farmers again turned their attention more generally to the raising of wheat, and when a trade in flour was carried on from that place with New Orleans. In 1832 the Black Hawk war led our citizens and others employed in the military service, on this occasion, to a more thorough exploration than had theretofore been made of the northern parts of the state, which, up to that time, had been a *terra incognita*, and to the speedy development of the riches of its soil and its vast natural resources.

The idea of raising the tame grasses for hay and pasturage seemed, at that day, to be the climax of folly. To go to the expense of raising grass in a country, like this, so overrun with it already that it could scarcely suffer a sensible diminution in the lifetime of a Methuselah, was a speculation that would not pay.

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these tame grasses never could be raised successfully in this country, designed and prepared by the Creator for the growth of other grasses, which he had planted here, where they properly belonged. At length Southern Illinois began to awaken to a sense of her importance, as on her then hung the destinies of the whole state, and she extended her settlements and sent colonies into the north country. These colonists, in their new residences, met those who had come from the east and from foreign lands, and, laboring all in the same vineyard, consorted together, and the commingling of these several races and nationalities improved the original stock of each, like the commingling of the waters of our two great rivers, at Cairo, whereby each is improved, and the wholesome, though turbid, waters of the one are made clearer, while those of the other are purified and sweetened by the union.

The connection of Lake Michigan with the Illinois river, by a canal, had, at an early day, attracted the attention of the inquiring and observing in various parts of the United States, and the citizens of this state and of the city of New York were soon awakened to the importance of the work in a commercial and national view, and the grant of lands by congress, it was supposed, insured the success of the enterprise, which, as was shown by the first imperfect survey made of the route, would not cost the tithe of the moneys which have been expended in its construction. The canal commissioners, having laid out into town lots a portion of the granted lands, within the limits of the present city of Chicago, offered some of them for sale in the fall of 1829. This sale brought to the place many capitalists and enterprising men from distant parts, particularly the city of New York, who, seeing the manifest advantages of the town site, where an immense commerce must concentrate, hesitated not to invest their money in the purchase of lots in the new town, and, so soon as practicable, of lands adjacent; and some of the purchasers entered at once upon the work of improving by the erection of dwelling and business houses. A direct trade between it and New York immediately sprung up, and the money, and, what was more important, the enterprise of the great emporium of America were liberally and actively employed in the

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fame of the new city, which had gone abroad, as on the winds. These emigrants were hardy, industrious, enterprising, moral and orderly, and they possessed money and means sufficient for an advantageous entry upon their new field of operations. In fact, they were admirably suited to the building of cities and the advancement of new communities in a new country; and when the ancient Grecian states planted their flourishing colonies in Asia, Europe and Africa, on the borders of the Mediterranean sea, they sent not forth a better sample of improved humanity than those who, from time to time, have entered the port of Chicago, to become our fellow-citizens. The northwestern part of the state had, at a still earlier day, been brought into notice by the rich lead mines discovered there, and Galena—a second Petra in its situation—was not long in becoming—what it must always be—a wealthy, active business city. Her rich mines first invited emigrants as visitors there, but the greater riches of the soil retained them as settled inhabitants. The excellence of the land between Lake Michigan and the Mississippi river brought immigrants by thousands into that region of country—immigrants of such description as could hardly have failed to make a country, less favored by nature, prosperous and wealthy; but they had, in their new field of operations, the best soil which the earth afforded, and this they knew full well, and made manifest their knowledge by their works. Cæsar's report of his conquests, "*I came, I saw, I conquered*," may well express the rapidity with which the northern part of our state has been subdued by the hand of cultivation and industry.

On the recent past of our agriculture I need not dwell, as it may be presumed to be fresh in the recollections of most of the members of the society. I have, therefore, spoken more especially of that which is remote, and much of it in the long period of its history is prior to the organization of the state government, when, in a brief enumeration, I may say, the farm agriculture consisted, during the first hundred years after the permanent location of the French on the Mississippi, chiefly in the raising of wheat, of which, in some years, there was a considerable surplus, some barley and divers culinary vegetables, and of fruits, mostly pears and apples. Since that time, and many years since the time when England

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and sometimes a yoke of oxen. The horticulture was limited to the cultivation of a cabbage yard, in connection with which were usually raised melons, cucumbers, beets, carrots, parsnips, onions, and several other garden vegetables, and sometimes sweet potatoes, though the latter was commonly a part of the field culture, as was the cotton patch belonging to nearly every family. They manufactured their cotton into coarse cloth for the use of the family, and pressed their deer skins for a like use, and tanned the leather for their shoes. Their mechanical skill was seen in the erection of their cabins, the construction of their carts, and making out of raw hides the harness or gearing for their teams. And the household arts were not carried to great perfection; but it is due to the housewives of that day to say that their art in cooking wild meats and fish admitted, perhaps, of little improvement, as was the case likewise in the preparation of several other articles of food, and no little skill was frequently displayed in their numerous modes of preparing the same articles; and they knew how to live well on a few things.

Of the agricultural history of our state, during the last thirty-five years, I claim the right to speak from personal observation and knowledge. Of that which is prior, much of my information has been derived from aged men now dead, with whom, when in life, I was acquainted. Many of them had been born and raised in the country; others had lived in it long years, even from the time when the king of France was the lord paramount, and the custom of Paris was law at the Kaskaskias. To the present generation the narrative of the first exploration and the founding of the settlements in this valley may sound like romance; but it should be borne in mind, that they took place in a romantic age, when to go in quest of adventures was the order of the day, and, besides, the field of these operations was itself as wild and romantic as the enterprises. Still, should you choose to look upon much that has come down to us as fiction, the present phase of things, it may be said, shows truth to be stranger than fiction. What see we now? Not prairies of wild grass only, but prairies of wheat, also. The former forests of trees have become forests of Indian

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ing over the prairies and through the state in all directions. The screech of the night-owl and the howl of the wolf are drowned in the not less discordant sounds of the whistle of the locomotive. The longest railway of which the earth can boast is ours, and so numerous have such roads become, they may be regarded as the common highways of the state. Illinois, as the name signifies, may be personified as a full grown man, increasing his giant powers, standing with his feet on "the beautiful river," Ohio, by which, and the Wabash on one side, he is confined in his place, as he is on the other side by the Mississippi, and resting his majestic brow on the bosom of Lake Michigan. The lumbering four horse stage, which, as it were on yesterday, was seen dragging its slow length along through the mud, to-day has given place to the spacious passenger cars—traveling dwelling houses, harnessed to steeds of iron, on their rapid courses, snorting flames of fire.

Five years ago we hardly had a mile of railroad, worthy of the name; now, railroads are seen in every direction, extending through the length and breadth of the state, and the number of their miles completed is about twenty-four hundred; and so rapidly on the increase are they, as to baffle computation. The ten-acre corn field of 1820 having descended long from ancestor to heir, inheriting the same crop, is now widened out into hundreds of broad acres, increasing their fertility by judicious culture. The small cabbage-yard has expanded into the spacious kitchen garden, rich with culinary roots and vegetables of every description, and the cotton patch has been transformed into the parterre of floral beauty. The old shovel and the barshire are buried in the deep furrows of the bull and sub-soil plows. Labor-saving machines, operated almost without the help of man, many of the most important of which, owing their paternity to this state, lately, at the world's fair, won golden opinions, plant, harvest and prepare the crops for use. Stocks of horses, neat cattle, hogs and sheep of the most improved and desirable descriptions are the successors of the scrubs and ugly skeletons of former times, and are the only ones deemed worth raising. New and increased facilities of transportation to, and

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be defrauded. His gains are sure, whoever else may lose, and his dividends, though not formally declared, are, without fail, paid over steadily and daily. Our state is not now, as she once was, the sole purchaser and consumer of all her productions; but she exports vast amounts, which are distributed to the millions, up and down the earth's surface, for their subsistence. No longer are her products garnered only within the limits of the state where they are raised; but where civilization is *there* are they found. The population of our state in 1850, according to the United States census, was 851,470, considerably less than it was shown to be by the state census of the same year, and the increase since that time I know not, as I have not seen the returns of the census of this year; but it can hardly be less than sixty-five per cent., which will make our population, at the present time, 1,404,925, and Illinois, probably, the fifth state in the Union. This is, indeed, a large increase, though not larger, I appprehend, than the census returns, when they come to be seen, will show. The increase of the improved lands has been greater than that of the number of farms, and may very safely be set down at fifty per cent. on what it was in 1850. It was then 5,039,545 acres, making, at this time, 7,559,317 acres of improved lands, and the increase of unimproved, owned by individuals and incorporated companies, has been over one hundred and twenty per cent. The improvement in the stocks of horses, neat cattle and hogs, has, probably, been greater than the increase in their numbers; though the latter has been at the average rate of at least forty per cent. in the past five years. In some of the cereals, particularly wheat and Indian corn, we are enabled to make a still more flattering exhibit. The crop of wheat in this state, in 1849, was set down at 9,415,254 bushels—about three times as much as had been raised ten years before. The advance in the price in the past five years has greatly increased the production over what it otherwise would have been, and so as to have nearly doubled the quantity, making for this year the large amount of twenty millions of bushels. The Indian corn raised in 1839, was somewhat over twenty-two and one-half millions of bushels, and in 1849 it had increased to up-

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also. This, I am aware, is a flattering picture, and the more flattering because it is true; and yet, half the truth has not been told. It is, at best, only a very faint sketch of the splendid original—of Illinois—the poor man's country and the farmer's home. But she is spread out, in all her beauty and grandeur, before you, and shows to more advantage than she can be presented on canvass by the ablest master.

The southern part of our state has sometimes, since the great advance of the north over it in population, wealth and improvement, been, I know not for what reason, but somewhat in a tone of derision, called Egypt, by some persons, who have never known or have forgotten her agency in bringing into notice and opening up the waste places of the northern section; and unmindful of the kindly feelings which members of the same household should ever cherish towards each other, the people of Northern Illinois have, I fear, lent too ready an ear to misrepresentation against their southern brethren and their part of the state. Its true character has been sadly misrepresented and misunderstood abroad, and the false impressions thus made upon strangers have retarded improvements in that quarter, and still operate to its prejudice. Those with such impressions, and having no personal knowledge on the subject, will be likely to disbelieve what such knowledge would prove to be true—that this part of the state is mostly a high, rolling country, with abundant natural drainage; beautified, in a high degree, by hills and swells of every size and form; charming slopes and lovely vales, and expansive, gently undulating plains, with a soil of unsurpassed fertility; portions of it covered with magnificent timber trees—the glory of the forest; underlaid, in great part, by quarries of the best and most desirable of rock formations and strata of stone coal; bounded on three sides by three of the great rivers of the valley; watered and fertilized, throughout its length and breadth, by numerous lesser streams and springs of pure water; its seasons adjusted

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Anticipation might not be much at fault in cherishing the idea that this, our nicknamed Egypt, if favored with the factitious aids enjoyed by her venerable namesake of old, is capable of becoming the rival of that far-famed country, when she was in the zenith of her splendor—the glory of the old as she now is the admiration of the new world—when she was the foster mother of the arts and sciences, the oracle of wisdom, the mistress of learning and the model of taste and refinement—whence Europe received the rudiments of knowledge, and the germs of her subsequent greatness—when no philosopher was deemed worthy of the name, nor any sage regarded as truly wise, who had not journeyed into Egypt, and there sojourned and been instructed in her lore. And it should not be forgotten that this, our young Egypt, was once all of Illinois rescued from the savages, and in possession of civilized men.

I hope to be pardoned for this digression, if such it shall be called. Under existing circumstances I could not be expected to do less than mete out the modicum of justice which I have attempted to Southern Illinois—the birthplace of my children, and where most of the days of my pilgrimage on earth—and those the happiest and the best—have been spent: the scene of early and dear associations—may it be my final resting place when the toils of life are ended!

I have spoken of the past and the present of Illinois. These are all that we can call our own; yet, we may cast our thoughts ahead into the future, and form conclusions on its probabilities. Improvements so great as the last quarter century has consummated and set on foot, will not stop where they are. They have, indeed, been greater and more numerous, in the last ten years, than any prior equal period has ever brought to pass. They are, however, it would seem, only the beginning of the end. From the time of Adam, the father of our race, to that of Washington, denominated the father of his country, it may, with much truth, be said, that so great and sensible improvements and discoveries in the science of agriculture and their application to its practice, as an art, in securing its productions and equalizing and increasing their values, were not made, as have been, in the brief space between the time of the latter's death and the present day. An im-

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fort, live, move and have their being, cannot be more appropriately employed than in improving and developing for use the riches of the lease-hold estate placed under his absolute control, though owing fealty to the Lord paramount, in whom abides the ultimate fee of the land. This is the great business to which he is assigned —a business growing directly out of this relationship which he bears to his Maker; though it must be admitted he "has sought out many inventions," in avoidance of duty, and not directly connected with his primitive vocation and appointment.

After all that has been learned, we are yet in the infancy of the knowledge connected with the science of agriculture. "The ground teeming with fertility, and waste places basking in the sun, beckon chemistry to apply herself to agriculture," and, in the words of the Book of Wisdom, "we have need to know the operations of the elements, the beginning, ending and midst of the times, the alterations and turnings of the sun, and the changes of the seasons—the circuit of years and the position of the stars—the natures of living creatures—the volume of winds—the diversities of plants and the virtues of roots, and all such things as are either secret or manifest." It is not expected that all farmers will analyze the soil of their farms or their crops, but it is necessary to their complete success that this be done by somebody, and that they shall know the conclusions and the practical application of the knowledge thus derived.

The objects of this association, as declared in the constitution of the society, are, "the promotion of agriculture, horticulture, manufactures, mechanic and household arts;" all of which are undoubtedly objects eminently worthy of the careful attention of the most powerful intellects, and the society is deserving, as it once very properly received, the patronage of the state. I cannot say that, in ancient times, societies like the one which I have the honor to address, existed in form. As organized, at the present day, they are, I apprehend, of modern origin, as are also many other impor-

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but in part that which may be seen and comprehended more fully, and in a greater variety of phases, by a multitude of like minds, engaged for a common purpose in a common cause. This is deemed true as a general remark; but it acquires increased force in its application to a subject which, like agriculture, depends for improvement and success on repeated experiments and long-continued observations. The good effects of such societies in our sister states are manifest and numerous. In our own the society, though yet in its infancy, and hardly complete in its organization, has perceptibly awakened a spirit of inquiry and enterprise, which is, of all things, most desirable, and is, I am happy to say, giving promise of a rich harvest of blessings in the future. But agriculture, though the foundation and ultimate support of all, is not, in the building up of a state, all in all. Agriculture, manufactures and commerce are the three props that support a state. The attempt to support it by one or two of these, without the others, would be little wiser than building a house on one-third or two-thirds of a foundation. It may, on a superficial view, appear secure and well balanced for a time; but, sooner or later, it will fall to the ground. This observation is not inapplicable to Illinois, although she is eminently an agricultural state, and ought to bring to the altar of the God of the Harvests fatter offerings than any other equal portion of the United States, and I trust she will not be derelict in her duty.

Since the time when our first parents were expelled from their happy garden, which then lost its tenants, its fruits and its fertility together, no place can, we are disposed to think, more justly aspire to the rivalry of the primitive glory of that, than our fertile, pleasant garden of this unrivalled valley. In the variety, richness and number of nature's gifts, what people so liberally blessed as we? Never could it more appropriately have been said by any of the dwellers upon the earth than it can by us, this day: "The lines have fallen to us in pleasant places, and we have a goodly heritage." And to us—to this generation—is assigned the pleasing task of preserving and enriching this heritage. Our bounteous harvests—the richest the sun ever shown upon—our growing cities, the luxuries of life scattered profusely about us, our matchless internal improvements, our vast commerce, our sur-

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here, in our own state of Illinois, is "the happy land"—"a goodly land, flowing with milk and honey."

The earth has, not unaptly, been denominated a machine, with powers ever in motion, during the summer season, carrying on the process of vegetation. Unskillfully managed, it makes bad work, and becomes unserviceable. With more skill, it will yield more and better products, with diminished labor and expense, while its capabilities will be increased by use. Science aids us in the commonest business of life. Glorious as she is, she is not above the humblest employment. She kindly offers her service, not only to accomplish great undertakings, but to fashion your machines and implements, to compound and prepare your manures, to plant and gather your crops; in a word, to relieve you from a world of drudgery, and scatter plenty in her train. Without science man, though the ruler of the earth, would be among the most helpless of animated beings.

This is, confessedly, an age of progress. The laws of nature have been revealed with a fullness and defined with a precision unparalleled at any former period; yet too many of our farmers plow, and sow, and reap without inquiry into the laws by which a plant is produced or the sources whence the materials which enter into its structure are derived. The word soil, as generally used, is a collective term, standing for numerous conditions of vegetable growth. In a fruitful soil, these conditions are combined in proportions adapted to vegetable growth; in an unfruitful one, some of these conditions are wanting. So, also, of the words manure and atmosphere; water and manures influence the growth of plants, and this influence is said to be wholly owing to the constituents of the soil. Different plants, doubtless, demand different combinations of these conditions; and it may be truthfully affirmed, that what is one plant's food is another's bane, and in a knowledge of the combination of the conditions best adapted to each, consists excellent wisdom, and of more value than the golden mountains of California.

The plow, the harrow, the sickle and the scythe have had their

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arts—the centre of a world-wide commerce—extending her Briarean arms of iron across the prairies and over the whole Union—and whose place, but yesterday, was a wilderness. The blue sea before us, only a few days ago moved by the winds of heaven alone, is now all alive—the busy thoroughfare, where mighty ships do sport, and with their sails change their blue to white.

These arts and businesses, of which agriculture is the parent and foster mother, have, it is true, outgrown their parent and nurse; yet the parent, I am happy to see, is now advancing more rapidly than ever before. Numberless machines and instruments for the saving of labor and time have been devised. Preparing the ground, sowing, harvesting, threshing and cleaning the grain for the mill, may all be done with machinery, almost, not quite, self-operating. The character, nature, various uses and value of many products are better understood. New breeds of stock have been largely introduced. Chemistry analyzes the soil, and shows what element or condition is needed to increase its fertility or prepare it for each particular product. Manures, formerly suffered to waste their poisonous effluvia on the air, to the detriment of the people's health, are saved and prepared for use. From age to age man accumulates the knowledge which clothes him with power. The subjugated elements yield him obedience and become his servants. The lightnings of heaven leap away to be his messengers, and the earth ceaselessly labors to bring forth whatever can minister to his gratification.

Skill and science are constantly applied to the working of this mighty machine—the earth. It would be little less wise to forget the things already learned than to stop short and learn no more. In many of the best improved portions of the old world, underground drainage has been practiced, and has, of late, been introduced into the agricultural operations in some parts of the new, with entire success and much advantage to the increase of production; and this improvement—a great one, as experiment has fully proved—is facilitated, cheapened and rendered durable by the use

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this practice will, I apprehend, demonstrate its value to be as great here as it has been found to be elsewhere, and will mark a memorable era in the agriculture of the state, by the increased amount and greater certainty of its profits. The improvements in the art of tillage contributed, as has been supposed, more than all besides, to ward off the starvation which one of the profoundest thinkers of his time had calculated would overtake the people of England, on the supposition that the increase of her population would be in excess of the means of support; although the population increased according to the prediction of the learned Malthus, yet it so turned out that the agricultural products of the country had in the mean time increased in the ratio of two hundred and fifty per cent. greater than the population. With the system of cultivation to be found in some portions of Europe, the soil of Illinois could, in fruitful years, be made adequate to the support, by its productions, of the whole United States. And what we now see is but the beginning. The end is not yet. All that has been done is but of small moment compared with the magnitude of what will yet come to pass. The future of our state is full of encouraging hope, and it depends upon the cultivation of the earth whether or not it shall be realized. Neglect of agriculture will undoubtedly be followed by decay in morals and the arts, as well as the abuse and perversion of the government. The empire of Mexico proves and illustrates this. There private property is the spoil of robbers, and liberty the plaything of a tyrant, because her agriculture is neglected and degraded.

I am pleased to see that the government of the United States, through the agricultural division of the patent office, has, of late, been doing something for the country by the introduction, from abroad, of new varieties of grains, fruits, plants, seeds and other things, many of which will, no doubt, be found to be valuable additions to our present number of vegetable productions, and it is very desirable that the usefulness of this branch of that office may not be checked, or its efficiency impaired, or its progress impeded by the withholding of the necessary money appropriations by congress.

Hitherto agriculture has been slow in her advances, but hereafter, in company with her sister arts, she is destined to make mighty strides. We cannot predict how soon we may be startled

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actually come to pass. It has been shown, by experiments, that by the stimulus of electricity plants may be made to grow with a magical rapidity. There is something to hope from things as yet "not dreamed of in our philosophy." What we now see are only the shadows which coming events have cast before them. The wave which is to bear us onward has not reached us. But we feel it swelling, and see it in the distance. Shortly it may be expected to bear us aloft higher than we have ever expected to rise in this life. This cause agricultural societies are calculated to help every way. No great change has ever been wrought in the habits and practices of any people without a united effort, and we have the fairest field ever opened to man to invite and encourage our labors, and it behooves us to remember that skillful culture of our soil will produce not only grains, grasses and fruits, but another and far more important crop—Illinoisans—men—men who know their rights and dare maintain them—a fearless, upright and intelligent people, the pride and sure defence of the state. It startles the imagination to contemplate what we may soon become if we adopt the improvements already made, and make others, as we can, and keep up with those which time will bring to view. The child may now be born whose advanced age shall see the people of these United States three hundred millions in number. What a spectacle would be such a population, doubling its numbers every twenty-two and a half years, under a government of equal laws, faithfully administered, moving onward and upward with the energy which freedom alone can inspire, and aided by the highest science in making the most of their natural advantages! A high destiny awaits us, and the man who, with his senses open to the truth, would thwart such a destiny, or refuse his aid in its accomplishment, is recreant in his duty, not to his country alone, but to the best interests and highest hopes of the human race.

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AWARD OF PREMIUMS

AT THE THIRD ANNUAL FAIR OF THE ILLINOIS STATE AGRICULTURAL SOCIETY, CHICAGO, OCTOBER, 1855.

ILLINOIS CATTLE.

SHORT HORNS.

BULL, FOUR YEARS OLD.

E. Stephenson, Jacksonville, *Thomas Fairfax*, first premium,..... $12
Califf & Jacoby, Monticello, Piatt county, *President*, second premium,..... 8
Wm. B. Egan, Chicago, *Clinton Experiment*, third premium,..... 6

BULL, THREE YEARS OLD.

Jas. G. Wright and Walter J. Whitney, Naperville, *Rochester*, first premium,.. 12
Geo. Barnett, Lockport, *Enterprise*, second premium..... 8
W. H. Wilson, Freeport, *De Witt*, third premium,..... 6

BULL, TWO YEARS OLD.

Stephen Dunlap, Jacksonville, *Sir Warrior*, first premium,..... 12
Elon Eldred, Carrolton, Green county, *Lexington*, second premium,..... 8
E. B. Hitt, Exeter, Scott county, *Sir Worthy*, third premium,..... 6

BULL, ONE YEAR OLD.

Wm. Herriott, Mahomet, Champaign county, *Henry*, first premium,..... 12
Wm. Ross, Pittsfield, Pike county, *Benton*, second premium,..... 8
A. G. Carle, Urbana, Champaign county, *Sir Arthur*, third premium,..... 6

BULL CALF.

Elon Eldred, *Perfection*, first premium,..... 12
Califf & Jocoby, *Pride of the West*, second premium, ... 8
Stephen Dunlap, *Young America*, third premium,..... 6

COW, FOUR YEARS OLD.

Califf & Jacoby, *Kate*, first premium,..... 12
Stephen Dunlap, *Santa Anna*, second premium,..... 8
A. G. Carle, *Blue Bonnet*, third premium,..... 6

COW, THREE YEARS OLD.

James N. Brown, Berlin, *Bracelet*, first premium,..... 12
J. D. Smith, Berlin, Sangamon county, *Annette*, second premium.....

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HEIFER, ONE YEAR OLD.

J. D. Smith, *Moss Rose*, second premium..... $8
A. G Carle, *Lady Teaswater*, third premium,..... 6

The judges recommended first premiums to the four following heifers; which were awarded and paid accordingly, viz:

Empress, James N. Brown,..... 12
Lady Blanche, Stephen Brown,..... 12
Snow Drop, E. Stephenson,..... 12
Lady Roselle, John P. Henderson,..... 12

HEIFER CALF.

Stephen Dunlap, *Gaudy*, first premium,..... 12
James N. Brown, *Queen of the West*, second premium,..... 8
Elon Eldred, *Julia*, third premium,..... 6

Of our Short Horns the committee speak in the highest terms, and particularly note the excellence of the younger animals.

DEVONS.

BULL, THREE YEARS OLD.

Horace Capron, Alden, McHenry county, *Bloomfield*, first premium,..... 12

BULL, TWO YEARS OLD.

James Morey, New Plato, Kane county, *Shakspeare*, first premium,..... 12
Jonas G. Blank, Wayne Centre, Du Page county, *Fancy*, second premium..... 8

BULL, OVER ONE YEAR.

Horace Capron, *Herbert*, first premium,..... 12
W. S. Carrington, Lyonsville, Cook county, *Diamond*, second premium,..... 8

BULL CALF.

John C. Crowder, Springfield, *Red Jacket*, first premium,..... 12
E. O. Hills, Bloomingdale, Du Page county, *Nero*, second premium,..... 8

COW, THREE YEARS OLD.

Horace Capron, *Adeline*, first premium,..... 12
Horace Capron, *Josephine*, second premium,..... 8

HEIFER, TWO YEARS OLD.

A. B. McConnell, Springfield, *Strawberry*, first premium,... 12

HEIFER, ONE YEAR OLD.

Horace Capron, *Flora*, first premium,..... 12
W. S. Carrington, *Fanny*, second premium,..... 8

HEIFER CALF.

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NATIVE, AND CROSS BETWEEN NATIVE AND IMPROVED.

COW, FOUR YEARS OLD.

A. G. Carle, *Maria*, first premium,..... $12
Abraham Kershaw, Wayne, Du Page county, *Mary*, second premium,..... 8
Major Noble, Jefferson, Cook county, *Lady Jane*, third premium,..... 6

HEIFER, TWO YEARS OLD.

J. D. Smith, *Ella*, first premium,..... 12
W. P. Withers, *Clara Fisher*, second premium,..... 8
E. O. Hills, *Cherry*, third premium,..... 6

HEIFER, ONE YEAR OLD.

J. D. Smith, *Strawberry*, first premium,..... 12

HEIFER CALF.

E. Stephenson, *Lizzie Fairfax*, first premium,..... $12
A. G. Carle, *Jenny Lind*, second premium,..... 8
Wm. W. Morton, *Castrania*, third premium,..... 6

DISCRETIONARY.

Allen W. Gray, Niles, Cook county, bull calf, *Sam Houston*,..... 6
J. P. Henderson, bull calf, *Jack Leach*,..... 6

FOREIGN CATTLE.

BULL, THREE YEARS OLD—DEVON.

Orion E. Eldred, Napoleon, Jackson county, Michigan, *Osceola*,..... Diploma.

BULL, TWO YEARS OLD—SHORT HORN.

Grow & Butler, Lexington, Kentucky, *Roan*,..... Diploma.

BULL, ONE YEAR OLD—SHORT HORN.

J. K. Ashurst, Lexington, Kentucky, *Sultan*,..... Diploma.

BULL CALF.

Grow & Butler, *Deep Red*,..... Diploma.
Buford & Middleton, Crab Orchard, Lincoln county, Kentucky, *Don Juan*,.. Diploma.
L. F. Benedict, Clarendon, Granger county, Ohio, *Captain*,..... Diploma.
L. F. Benedict, Clarendon, Granger county, Ohio, *Excelsior*,..... Diploma.

COW, THREE YEARS OLD.

Grow & Butler, *Finish*,..... Diploma.
Buford & Middleton, *Amanda*,..... Diploma.
W. H. Miller, Moscow, Hillsdale county, Michigan, *Sophia*,..... Diploma.

HEIFER, TWO YEARS OLD.

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AYRSHIRES.

BULL, THREE YEARS OLD.

Jeremiah Dodge, Ashtabula, Ohio, *Ross*,..... Diploma.
(Error in entry—this is a Durham bull.)

FAT CATTLE.

THREE BULLOCKS, &C., FOUR YEARS OLD.

Califf & Jacoby, one lot, first premium,..... $12

BULLOCKS, &C., THREE YEARS OLD.

W. P. Withers, first premium,..... 10
B. F. Harris,..... Vol. Transactions.

STEER, TWO YEARS OLD.

B. F. Harris,..... Medal.

DISCRETIONARY.

J. A. Wells, Half Day, Lake county, *Western Beauty*,..... Transactions.

WORKING OXEN, &c.

THREE YOKE.

Horace Capron, first premium,..... $12

BEST YOKE, FOUR YEARS OLD.

B. F. Harris, first premium,..... 10

BEST YOKE, UNDER FOUR YEARS.

Califf & Jacoby, first premium,..... 10

SWEEPSTAKES.

TEN CALVES.

James N. Brown, first premium,..... Diploma and 50
Stephen Dunlap, second premium,..... Diploma and 40

THREE COWS AND THREE HEIFERS.

Stephen Dunlap, first premium,..... Diploma and 20
James N. Brown, second premium,..... Diploma and 10

HORSES, JACKS AND MULES—THOROUGH BRED.

STALLION, FOUR YEARS OLD.

Daniel B. Holmes, Chicago, *Black Blucher*, first premium,..... 12
Phillips & Waterman, Lockport, *Young Blucher*, second premium..... 8

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BROOD MARE, FOUR YEARS.

W. W. Morton, Jacksonville, *Texana*, first premium,..... $12
P. R. Morgan, Chicago. *Mary*, second premium,..... 8
(Pedigree of mare Mary not entirely satisfactory.)

FILLY, THREE YEARS OLD.

W. W. Morton, *Fanny Fern*, second premium,..... 12

MARE COLT.

W. W. Morton, *Charm*, first premium,..... 12

SUCKING COLT.

W. W. Morton, *Flight*, first premium,..... 12

HORSES OF ALL WORKS—ROADSTERS.

STALLION, FOUR YEARS OLD.

Eber B. Chamberlin, Elgin, *Black Hawk*, first premium,..... 12
Potter & Miller, Rockford, *Black Hawk*, second premium,..... 8
Chas. Stone, Lawn Ridge, Marshall county, *Edgar Hill*, third premium..... 6

STALLION, THREE YEARS OLD.

L. Hinkston, Waukegan, *Black Tiger*, first premium,..... 12
Michael Swingley, Buffalo Grove, Ogle county, *Star of the West*, second premium,..... 8

STALLION, TWO YEARS OLD.

Charles J. Wheeler, Stout's Grove, McLean county, *Medoc*, first premium,.... 12
Reuben W. Kellmer, Lilly Cash, Will county, *Morgan Grey Hawk*, second premium,..... 8
Z. R. S. Freeman, Forksville, Lake county, *Morgan*, third premium,..... 6

STALLION, ONE YEAR OLD.

George Garden, Lockport, *Prince*, first premium,..... 12
Wm. Jones, Oakland, Coles county, *Sailor Boy*, second premium,..... 8

BROOD MARE, FOUR YEARS OLD.

John P. Henderson, *Lucy Starlight*, first premium,..... 12
W. W. Morton, *Lize*, second premium,..... 8

FILLY, THREE YEARS OLD.

W. W. Morton, *Alonio* (?) first premium,..... 12
Stephen White, Morgan county, *Jenny*, second premium,..... 8

DISCRETIONARY.

John P. Henderson, *Jim Stacy*,..... 5

DRAUGHT HORSES.

STALLION, FOUR YEARS OLD.

W. D. Campbell, Bloomington, *Smasher*, first premium,..... $12
Geo. H. West, Ottawa, *Young Sampson*, second premium,..... 8

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STALLION, TWO YEARS OLD.

Wm. Jones, *Jack Sleeper*, first premium,..... $12
James Graham, Momence, Kankakee county, *Top Gallant*, second premium,.... 8
Isaac M. Gillett, Naperville, *Young Sampson*, third premium,..... 6

GELDING, THREE YEARS OLD.

Samuel Ogden, Lexington, McLean county, *Blinkey*, first premium,..... 10
B. Ackley, Chicago, ——, second premium,..... 6
G. W. Ashmore, Oakland, Coles county, *Sampson*, third premium,..... 8

BROOD MARE, FOUR YEARS OLD.

J. W. Switzer, Elgin, *Sampson Stock*, first premium,..... 10
John Parson, Quincy, *Jenny Lind*, second premium, ... 6

FILLY, THREE YEARS OLD.

Charles Kershaw, Wayne, *Fanny*, first premium, ... 10

SUCKING COLT.

A. Culver, *Poll*, first premium,..... 10
J. W. Switzer, *Sir Henry*, second premium,..... 5

PAIR HORSES—FARM USE.

Smith Fry, Peoria, first premium,..... 12
Charles Walsh, Chicago, second premium,..... 8

DISCRETIONARY.

Thomas W. Sampson, Chicago, for team, five horses,..... 10
F. B. Garland, Chicago, Shetland pony,..... 6

MATCHED HORSES, ETC., FOR CARRIAGES.

PAIR GELDINGS OR MARES.

Israel P. Dana, Springfield, first premium,..... 15
George Danley, *Sam* and *Rocky*, second premium,..... 10
Wm. P. West, Batavia, *Bob* and *Tom*, third premium, ... 5

HORSES FOR LIGHT HARNESS—SINGLE.

GELDING OR MARE, FOUR YEARS OLD.

Geo. W. Chatterton, Springfield, *Ben Gray*, first premium,..... 10
Lewis & Loomis, Chicago, *Fred*, second premium,..... 5

BEST GELDING OR MARE FOR SADDLE, FOUR YEARS OLD.

B. F. Harris, *Mary*, first premium,..... 10

HORSES FROM OTHER STATES.

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STALLION, [illegible] YEARS OLD, THOROUGH BRED.

J. M. Sullivant, *Nelly Bly*, ... Diploma.
D. G. Duel, Medina, Orleans county, New York, span horses, ... Diploma.
B. F. Arnold, Milwaukee, Wisconsin, span horses, ... Transactions.
Informal entry—premium awarded on recommendation of chairman of committee.

JACKS AND MULES.

JACK, FOUR YEARS OLD.

Wm. B. Egan, Chicago, *Pinto*, first premium, ... $12
F. P. Gantier, *Nameless*, second premium, ... 8

JACK, THREE YEARS OLD.

Henry Palmer, Lincoln, Logan county, *Warrior*, first premium, ... 12
Henry Palmer, Lincoln, Logan county, *Knight of Malta*, second premium, ... 8

JACK, TWO YEARS OLD.

B. F. Hitt, Exeter, Scott county, *Charles*, first premium, ... 12
Urial Mills, Salem, Marion county, *Black Hawk*, second premium, ... 6

PAIR OF MULES, THREE YEARS OLD.

Joseph Stockdale, Springfield, *Kitty* and *Fanny*, first premium, ... 15

SINGLE, UNDER TWO YEARS OLD.

I. D. Smith, Berlin, *Pocha*, first premium, ... 8
Edmund Grubb, Liberty, Adams county, *Clinker*, second premium, ... 6
Discretionary premium to Speed & Co., of Chicago, for single mule, not entered on books, ... 8

SINGLE MULE, OVER ONE YEAR OLD.

S. L. Clark, Spring creek, McDonough county, *Jenny Lind*, first premium, ... 8
James Kennedy, Bloomington, *Polly Kennedy*, second premium, ... 6
Discretionary premium to James Kennedy, Bloomington, for pair mules, ... 8

ILLINOIS SHEEP.

LONG WOOL BAKEWELL.

BUCK, OVER TWO YEARS OLD.

Martin Warkerly, Crete, Will county, first premium, ... 8
Joseph Morehouse, Deer Grove, Cook county, second premium, ... 6

BUCK, UNDER TWO YEARS OLD.

James Fuller, Plato, Kane county, first and second premiums, ... 14

PEN FIVE EWES, OVER TWO YEARS OLD.

James Fuller, first premium, ... 8

PEN FIVE EWE LAMBS.

Joseph Morehouse, first premium, ... 8

MERINOS AND THEIR GRADES.

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E. E. Gorham, Hadley, Will county, French buck. *Napoleon*, first premium,.... $8
J. Milliken, Danville, Vermilion county, French buck, second premium, ... 6

BUCK, UNDER TWO YEARS OLD.

J. Milliken, Danville, Vermilion county, French buck, first premium,..... 8
Wm. H. Frazer & Co., Homer. Will county, French buck, second premium,.... 6
D. T Hoppin, Spanish buck, *Kansas*, first premium,..... 8
H. & C. Barnes, one lot Spanish, second premium,..... 6

PEN OF FIVE EWES, TWO YEARS OLD.

A. B. McConnell, Springfield, French, first premium,..... 8
John McConnell, Springfield, French, second premium,..... 6
Wm. H. Frazer & Co., one lot French ewes,..... Commended.
J. Milliken, one lot French ewes,..... Commended.
B. F. Sandford, Danby Station, Du Page county, one lot of Spanish, first premium, $8
H. & C. Barnes, one lot Spanish, second premium,..... 6

PEN OF FIVE EWES, UNDER TWO YEARS.

Simeon Lee, Maine, Cook county, one lot French. first premium,..... 8
Wm. H. Frazer & Co., one lot French, second premium,..... 6
J. Milliken, one lot Spanish, first premium,..... 8

PEN OF FIVE EWE LAMBS.

Wm. H Frazer & Co., one lot French, first premium,..... 8
E. E. Gorham, one lot French, second premium,..... 8
H. & C. Barnes, one lot Spanish, first premium,..... 6

DISCRETIONARY.

H. & C. Barnes, buck lamb, *Atwood*,..... Transactions.
W. W. Rees, Danby Station, five buck lambs,..... Transactions.
Wm. H. Frazer & Co., five buck lambs,..... Commended.
T. H. Thompson, Dundee, Kane county, (informal entry)..... Commended.

FOREIGN SHEEP.

LONG AND MIDDLE WOOLED.

BEST BUCK—LONG WOOLED.

N. M. Carpenter, Ellington, Chatauque county, New York, *Roderick Dhu*, first premium,..... .... Diploma.

PEN OF FIVE EWES—LONG WOOLED.

Grow & Butler, Lexington, Fayette county, Kentucky, first premium,..... Diploma.

PEN OF FIVE EWE LAMBS—LONG WOOLED.

A. V. Stockwell & Co., Brattleboro, Windham county, Vermont, first premium, Diploma.

BEST BUCK—MIDDLE WOOLED.

Lewis F. Allen, Black Rock, Erie county, New York, first premium,..... Diploma.

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MERINOS AND THEIR GRADES.

BEST BUCK.

H. Allen, Scipio, Cayuga county, New York, *Matchless*, first premium, ... Diploma.

PEN OF FIVE EWES.

H. S. Hall, Gaines, Orleans county, New York, first premium, ... Diploma.

PEN OF FIVE BUCK LAMBS.

Boynton, Higbee & Co., Elk Grove, Cook county, Illinois, first premium,.... Diploma.

DISCRETIONARY.

A. L. Bingham, West Cornwall, Addison county, Vermont, lot twenty-five sheep,..... Transactions.
Boynton, Higbee & Co., five lots sheep,..... Transactions.

ILLINOIS SWINE.

BEST BOAR.

W. F. M. Arny, Bloomington, McLean county, *Abner*, first premium,..... $10

BOAR, ONE YEAR OLD.

W. F. M. Arny, *Ben*, first premium,..... 10
J. M. Gillett, Naperville, *Prince*, second premium, ... 5

BOAR, FIVE MONTHS OLD.

W. F. M. Arny, *Napoleon*, first premium,..... 6

BREEDING SOW, TWO YEARS OLD.

W. F. M. Arny, *Queen of the East*, first premium, ... 6

BREEDING SOW, ONE YEAR OLD.

W. F. M. Arny, *Landsdale*, second premium, ... 6

LOT OF FIVE PIGS, &C.

M. Dodge, Chicago, first premium,..... 5
W. F. M. Arny, second premium,..... 3

DISCRETIONARY.

W. F. M. Arny, one lot of thirty-three pigs and hogs,..... Medal.

POULTRY.

SHANGHAIS.

[illegible] Chicago, first premium $3

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CHINA GEESE.

Lewis F. Allen, first premium, ... $2

LARGE GEESE.

Lewis F. Allen, first premium, ... 2

EXHIBITION OF PIGEONS.

Wm. Gentry, Chicago, first premium, ... 2

DISCRETIONARY.

H. McFarlane, jr., Chicago, cage Bantams, ... Transactions.
H. C. Ryerson, Chicago, for Guinea pigs, ... Transactions.
J. M. Gillett, for lot Brahma Pootra fowls, ... Transactions.
L. S. Beardsley, Chicago, lot fancy rabbits, ... Transactions.

FARM IMPLEMENTS.

PLOWS.

PLOW FOR OLD GROUND PRAIRIE.

John Deere, Moline, Rock Island county, first premium, ... Diploma.
Wm. Parlin & Co., Canton, Fulton county, second premium, ... $10

DISCRETIONARY.

E. & C. H. Dawson, Jacksonville, for steel clipper, ... Medal and Transactions.
Gauble & French, Kankakee, Kankakee county, for three double sod and stubble plows, ... Transactions.
Furst & Bradley, Chicago, for one plow, ... Transactions.

PLOW FOR CLAY SOIL.

John Lane, jr, Lockport, Will county, first premium, ... Diploma.
S. O. Vaughan, Naperville, second premium, ... $10

PLOW FOR TWO HORSES.

Augustus Guibor, Peoria, first premium, ... Diploma.
Roderick Owen, Tiskilwa, Bureau county, second premium, ... $10

TIMOTHY AND BLUE GRASS SWARD PLOW.

S. O. Vaughan, first premium, ... Diploma.
Jones & Cagwin, Joliet, second premium, ... $10

SUBSOIL PLOW.

Furst & Bradley, Chicago, rst premium, ... Diploma.

DISCRETIONARY.

James P. Skinner, Rockford, ... Medal and Transactions.
Solomon & Co., Carrington, (?) one plow, ... Transactions.

ROLLERS, HARROWS, &c.

HORSE RAKE.

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Wm. Birch, Henry, Marshall county, first premium, ... Diploma.

BEST HARROW.

Levi Newton, Batavia, Kane county, first premium,..... Diploma.

SHOVELS, HOES, RAKES, &c.

SIX MANURE FORKS.

Hooker & Jones, Chicago, first premium, ... Diploma.

TWELVE CORN BROOMS.

E. W. Warner, Chicago, first premium,..... Diploma.

DRILLS, &c.

BEST GRAIN DRILLS.

D. O. Daniels, Belleville, St. Clair county, first premium, ... Diploma.

CORN PLANTER—HORSE POWER.

G. W. Brown, Galesburg, (took first premium last year—is still best.)
B. F. Stowell, McConnell, Stephenson county, second premium,..... $10

CORN PLANTER—HAND POWER.

Randall & Jones, Rockton, Winnebago county, first premium, ... Diploma.
Lester Patee, Peoria, second premium,..... $10

DISCRETIONARY.

Plymon B. Green, Waukegan, Illinois,..... Transactions.

BEST CORN AND SEED PLANTER—HORSE POWER, DRILLS.

W. P. Emmet, Louisa, Stephenson county, first premium,..... Diploma.

DISCRETIONARY.

R. H. Holder, Bloomington, for one sod corn planter, attached to prairie plow, Medal and Transactions.
John R. Gaston, Panola, Woodford county, for grass seed sower, ... Transactions.
Murray & VanDoren, Ottawa, for seed planter,..... Transactions.

HARVESTERS, MOWERS, &c.

REAPER.

G. H. Rugg, Ottawa, second premium,..... $10

REAPER AND MOWER.

Manny & Co., Rockford, first premium,..... Diploma.
John S. Wright, Chicago, second premium,..... $10

MOWER.

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PORTABLE SAW MILLS.

P. W. Gates, Chicago, first premium, ... Diploma.
Henry D. Emery, second premium,..... $5

CORN AND COB MILL.

E. W. Lawrence, Chicago, ... Transactions.
Hiram A. Pitts, for corn grinder,..... Transactions.

BROAD CAST SOWING MACHINE.

H. W. Hubbard, Ansonia, New Haven county, Connecticut, first premium,.. Diploma.

FANNING MILL.

Roach & Wingate, Clintonville, Kane county, Illinois, first premium, Diploma and $5
Widney & Walker, Mt. Carroll, Carroll county, ... Transactions.
Henry D. Emery,..... Transactions.
H. H. Beach, Chicago, ... Transactions.
N. H. Goodrich, Aurora,..... Transactions.

HAY PRESS.

P. Manny, Wadham's Grove, Stephenson county, Illinois, first premium,.... Diploma.

CORN SHELLER—HORSE POWER.

Jones & Cagwin, second premium,..... $5

CORN SHELLER—HAND POWER.

Samuel G. Magill, Chicago, first premium, ... Diploma.

STRAW AND HAY CUTTER.

A. Gordon & Co., Rochester, New York, first premium,..... Diploma.

SMUT MACHINE.

Henry Hoats, Chicago, second premium,..... $5

DISCRETIONARY.

Jones & Cagwin, for timothy and clover seed planter,... ..... Transactions.
J. V. Home, Magnolia, Putnam county, for Home's corn sheller and separator, Medal and Transactions.
Henry D. Emery, for cider mill, ... Diploma.
Henry D. Emery, for endless chain horse power,..... Transactions.

HOUSEHOLD IMPLEMENTS, &c.

CHURN.

H. Webster, Ogdensburg, St. Lawrence county, New York,..... Transactions.

CHEESE PRESS.

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FARM PRODUCTS.

WOOL.

Martin Warlerly, Crete, Will county. (No report on wool has been found.)

GRAIN AND VEGETABLES.

WHEAT.

Sydney S. Condon, Jonesboro, first premium, ... $5

RYE.

S. S. Condon, first premium, ... 3

OATS.

Austin Rockwell, Jacksonville, first premium, ... 3

INDIAN CORN, BUSHEL, IN THE EAR.

S. S. Condon, first premium, ... 5

(The committee awarded premiums to J. B. Thomas and L. S. Pennington—both unauthorized.)

BUCKWHEAT.

Charles McBaen, Springfield, first premium, ... 5

TIMOTHY SEED.

O. B. Galusha, Lisbon, Kendall county, first premium, ... 5
Charles McBaen, discretionary, ... 5

CLOVER SEED.

Charles McBaen, first premium, ... 5

BLUE GRASS SEED.

Charles McBaen, first premium, ... 5

INDIAN CORN—DIFFERENT VARIETIES.

W. F. M. Arny, first premium, (awarded by executive board) 5
J. R. Thomas, Waverly, Morgan county, first premium, (awarded by committee) 5

TABLE POTATOES.

H. Hammond, Ontario, Knox county, first premium, ... 5
O. B. Galusha, second premium, ... 3

SEEDLING POTATOES.

H. L. Brush, Ottawa, first premium, ... 5
H. L. Brush, for sweet potatoes, first premium, ... 3

ONIONS.

A. G. Carle, Urbana, first premium, ... 5

TABLE TURNIPS.

Charles W. Murtfeldt, Oregon, Ogle county, first premium, ... 5

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CABBAGE.

M. C. Sherwin, first premium,..... $5

EGG PLANT.

A. G. Carle, first premium,..... 5

LIMA BEANS.

H. L. Brush, first premium,..... 5

PUMPKINS.

Urial Mills, Salem, Marion county, first premium,..... 5

SQUASHES.

J. A. Hutchings, Chicago, first premium,..... 5

DISCRETIONARY.

J. E. Kennicott, Elk Grove, Cook county, for sheaves of oats,..... Transactions.
Avis C. Kennicott, West Northfield, for sugar beets,..... $2
F. R. Elliott, Cleveland, Ohio, for an extensive show of garden and field seeds, Diploma and special thanks of society.

ILLINOIS FLOUR AND STARCH.

BARREL FLOUR.

S. N. Fullenwider, Chatham, Sangamon county, first premium,..... $5
Logan & Johnson, Springfield, second premium,..... 3

STARCH.

H. F. Kingsbury & Co., Aurora, first premium,..... 3
Discretionary premium to Kiddle & Miller, Danby Station,..... Transactions

ILLINOIS BUTTER AND CHEESE.

FRESH BUTTER IN ROLLS.

C G. Taylor, Pleasant Ridge, Rock Island county, first premium,..... $3
Charles W. Murtfeldt, second premium,..... 2

BUTTER MADE IN MAY OR JUNE.

Charles W. Murtfeldt, first premium,..... 3

BUTTER IN TUBS, &C.

C. G. Taylor, first premium,..... 5
Charles W. Murtfeldt, second premium,..... 3

CHEESE.

C. G. Taylor, first premium,..... 3

ILLINOIS HONEY, &c.

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HONEY.

S. S. Abbott, Jefferson, Cook county, first premium,..... 5

BAKERS' BREAD, CAKE, CRACKERS, &c.

Orrin Kendall, Chicago, first premium,..... .... Diploma.

DISCRETIONARY.

Chas. Schafer, Chicago, for five jars candy, ... Transactions.
Mrs. C. T. Boggs, Chicago, jar pickled peaches,..... ..... $3
Mrs. W. P. Iglehart, Chicago, jar jellies,..... 3
E. P. Vail, Chicago, jar jellies,..... 2
To the same, for raspberries,..... 2

The committee recommended, in addition to the above, two premiums of $10 each, to Mrs. E. P. Vail and Mrs. N. P. Iglehart, of Chicago, for their "patriotism and enterprise." *Awarded accordingly.*

PRODUCTS OF THE ORCHARD.

APPLES, GREATEST AND BEST VARIETY NAMED.

L. S. Pennington, Sterling, Whiteside county, first premium,..... 10
Wm. Stewart & Sons, Quincy, Adams county, second premium,..... 6

APPLES, TWELVE VARIETIES.

L. S. Pennington, first premium,..... 5
O. B. Galusha,..... Transactions.
John W. Pickard, Elroy, Stephenson county,..... Transactions.

SIX VARIETIES WINTER APPLES.

L. Montague, Louisa, Stephenson county, first premium,..... $5

AUTUMN PEARS.

Thomas H. Paine, Fremont, Lake county, first premium,..... 5
To the same, for winter pears, first premium..... 5
To the same, for seedling pears, first premium,.. 5

TWELVE NAMED VARIETIES PEACHES.

Wm. Schanck, Fremont, Lake county, first premium,..... 10

TWELVE PEACHES.

Wm. Stewart & Sons, first premium,..... 3

SIX SEEDLING PEACHES.

A. Rockwell, Jacksonville, first premium,..... 3

SHOW OF PLUMS.

Harrison Hancock, Groveland, Tazewell county, first premium,..... 3

QUINCES.

John Heck, Lockport, first premium,..... 5
Harrison Hancock. ..... Transactions

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SIX BOTTLES WINE, FROM ANY OTHER GRAPE.

Martin Moody, Danville, Vermilion county, first premium,..... $10

THREE BOTTLES WINE, FROM ANY OTHER FRUIT.

Mrs. H. Lowe, Joliet, first premium,..... 5

DISCRETIONARY.

J. A. & C Kennicott, lot fruit not entered for competition,..... Honorable mention.
O. P. Rogers, Marengo, McHenry county, lot apples and pears,..... Transactions.
Harrison Haneeck, osage orange,..... Transactions.
To the same, for lot barberries,..... Transactions.
Charles Carpenter, lot Catawba wine, (not entered for premium,) very highly commended, and considered the ripest and best adapted to the taste of those skilled in wines,..... Medal.
Isaac Merriam, five barrels apples, (informal entry,)..... Transactions.

TEXTILE FABRICS AND FINE ARTS, &c,

MITTENS.

Miss Susan W. Henderson, Jacksonville, first premium,..... $3

COAT.

W. S. Bond, Chicago, first premium,..... 5
To the same, for pants, first premium,..... 5
To the same, for vest, first premium,..... 5

TWO HORSE CARRIAGE.

Welch & Mendsen, Chicago, first premium,..... 15

CARRIAGE, FOR ONE OR TWO HORSES.

Welch & Mendsen, Chicago, first premium,..... 10

ONE HORSE CARRIAGE.

Ellithorpe, Kline & Bradley, (slide seat,) first premium,..... 10

WEEKLY PAPER.

G. Nicholay, Pittsfield, Pike county, first premium,..... Diploma.

DISCRETIONARY.

Thomas Bown & Co., Chicago, for mantel glass and picture frame,..... Medal.
Wm. S. Bond, Chicago, overcoat,..... Transactions.
Silliman, Seymour & Co., Chicago, umbrella, ... Medal.
Mills & Co., Chicago, lot cigars,..... Transactions.
Joshua Rhodes, Chicago, rag carpet,..... Transactions.
E. C. Spencer, Osceola, Clark county, needle work,..... Transactions.

AMERICAN FABRICS.

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WOOLEN CARPET.

TAPESTRY VELVET.

Beecher, Hollister & Wilkins, first premium,..... Diploma.

HOSIERY.

John Fitch, Carrollton, Greene county, first premium,..... Diploma.
A second premium was awarded to Mrs. Lydia Clifford, of Chicogo,.... Transactions.

DISCRETIONARY.

Field, Benedict & Co., Chicago, fancy cassimere,..... Transactions.
Beecher, Hollister & Wilkins, blankets,..... Transactions.
To the same, for table cover,..... Transactions.

NEEDLE WORK, &c.

EVIDENCE OF TASTE AND SKILL—PLAIN NEEDLE WORK, BY GIRLS UNDER FOURTEEN.

Mary Brown, Jacksonville, first premium,..... $5

BEST DARNING.

Cora E. Kennicott, West Northfield, Cook county, first premium,..... 5

PLAIN SHIRT.

Mrs. Frederick Mechelke, Chicago, first premium,..... 3

PLAIN SHIRT, BY GIRL UNDER FOURTEEN.

Anna Brown, Jacksonville, first premium,..... 3
Mary Brown, Jacksonville, second premium,..... 2

DOMESTIC QUILT.

Cora L. Warriner, Bloomington, first premium,..... 5

WHITE DOMESTIC COUNTERPANE.

Augusta Hall, Fairfield, Wayne county, (informal entry,) first premium,..... 6
J. W. Sharpe, Chicago, second premium,..... 5

CALICO QUILT.

Mrs. Ira F. Elrod, Bernadotte, Fulton county, first premium,..... 5
R. H. Howe, Louisville, Kentucky,..... Transactions.

SILK QUILT.

Mrs. H. S. Pierpont, La Salle, first premium,..... $5

EVIDENCE OF TASTE AND SKILL—ORNAMENTAL NEEDLE WORK.

Alice Fitz Simmons, Crystal Lake, McHenry county, first premium,..... 5

COLLARS, &C.

Mrs. H. Lowe, Joliet, first premium,..... 2

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EVIDENCE OF TASTE AND SKILL—WORSTED EMBROIDERY.

Mrs. Robert Dunk, Chicago, first premium,..... $3
Mrs. James L. Gates, Chicago, second premium,..... 2

OTTOMON COVERS.

Miss Sophia Maynard, Chicago, first premium,..... 2

CUSHION, &C.

Julia Baird, Chicago, first premium,..... 2

LAMP STAND, &C.

Mrs. J. L. Galliner, Thornton Station, Cook county, first premium,..... 2
Mrs. Urilla Swingley, discretionary premium,..... 2

PAIR SLIPPERS.

Mrs. J. Bunn, Springfield, first premium,..... 2

SILK EMBROIDERY.

Mrs. H. Park, Chicago, first premium,..... $3 and Transactions.

SOFA CUSHION, EMBROIDERED.

Dora Brunning, Chicago, first premium,..... $2

MANTILLA, EMBROIDERED.

Mrs. Jane Woods, first premium,..... 2

TOILET CUSHION.

Mrs. Dr. Roberts, Decatur, first premium,..... 3
Mrs. S. Francis, Springfield, second premium,..... 2

SILK BONNET.

Mrs. H. Fontain, Chicago, first premium,..... 5
Mrs. Kavanagh & Miss Ryan, Joliet,..... 3
Informal entry, by error of clerk, awarded by special committee.

SHELL WORK.

Mrs. Henry Verbeck, Newark, Kendall county, first premium,..... 5

WAX FLOWERS.

Miss Helen White, Chicago, first premium,..... 2

SPICE FLOWERS.

Miss Happy B. Boles, Chicago, first premium, $2, and in addition a discretionary premium,..... Transactions.

DISCRETIONARY.

Miss Marie W Allen, Chicago, for boquet paper flowers,..... $2
Jane Woods, for fine display,..... Medal
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Mrs. H. J. Lipscomb, Springfield, hair wreath, awarded by the executive committee,..... $10
Miss Sarah Wright, Naperville, pair slippers, by girl five years old,..... 2
J. Gray, Chicago, case wigs,..... 5
Cornelia Bartlett, Aurora, leather work,..... 5
Miss Margaret Brooks, Chicago, wax fruit,..... 2
John C. Maxcy, Springfield, suspenders, (informal entry,)..... 2

PAINTINGS, DAGUERREOTYPES, &c.

ANIMAL PAINTING—OIL.

John W. O'Brien, Chicago, first premium,..... Diploma.
H. & O. Wilson, Chicago, second premium,..... $10

FLOWER PAINTING.

Reinhard Wernigk, Chicago, first premium,..... Diploma.
Mrs. N. E. Stewart, Chicago, second premium,..... $3
Miss Ellen A. Hubbard, Chicago, third premium,..... 2

MONOCHROMS.

Miss Marie W. Allen, Chicago, first premium,..... Diploma.
Sarah Mendsen, Chicago, second premium,..... $2

DAGUERREOTYPES.

Alex. Healer, Chicago, first premium,..... Diploma.
Samuel M. Fassett, Chicago, second premium,..... $3
P. Von. Schneidau, Chicago, third premium,..... 2

FANCY PAINTING, IN OIL, BY ILLINOIS ARTIST.

Wm. E. McMaster, Chicago, second premium,..... 10
Reinhard Wernigk, third premium,..... 5

COPPER PLATE ENGRAVING.

S. Davis Childs, jr., Chicago, first premium,..... Diploma.
To the same, for wood engraving, first premium,..... Diploma.

PENCIL DRAWING.

Mrs. S. R. Page, Chicago, first premium,..... Diploma.
G. W. E. Cook, Lacon, Marshall county, second premium,..... $5
John E. Dillingham, Chicago, third premium,..... 3

CRAYON DRAWING.

Reinhard Wernigk, first premium,..... Diploma.
Henry A. Clarke, Chicago, second premium,..... $5
Marie W. Allen, Chicago, third premium,..... 3

WRITING.

D. V. Bell, Chicago, first premium,..... Diploma.

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CARVING ON WOOD.

Thomas Lees, Chicago, first premium,..... Diploma.
Lees & Cope, Chicago, second premium,..... $3

ARCHITECTURAL DRAWING.

S. P. Hemmerick, Chicago, third premium,..... 3

DISCRETIONARY.

Reinhard Wernigk, for photograph,..... Diploma
To the same, for pastel paintings,..... Diploma
Charles V. Bond, for oil painting,..... Diploma.
Wm. E. McMasters, portrait in oil,..... Diploma.
To the same, for landscape in oil,..... $5
E. St. Alary, Chicago, for pastel painting,..... Diploma.
J. W. Beckman, Chicago, for engraving..... Diploma.
Wm. E. McMasters, for portrait of an authoress,..... Diploma.
Hesler & Joslin, Chicago, photograph on ivory,..... Diploma.
To the same, for collection pastel paintings,..... Diploma.
Wm. Holmes, Chicago, portrait frames, &c.,..... $10
To the same, for mirror frames,..... Diploma.
Kelsey Lillibridge, Chicago, for ambrotypes,..... $5
Isaac A. Pool, Chicago, for landscape,..... 3
H. A. Balch, Joliet, daguerreotypes,..... 5
E. C. Cridland, Chicago, for portrait of an artist,..... 5
Taylor & Lennox, Chicago, ambrotypes,..... Diploma.

DESIGNS AND MODELS.

DISCRETIONARY.

W. F. M. Arny, Bloomington, for Prindle's patent self-sustaining and portable fence, ... Diploma.
John B. Blair, Chicago, for attachment to ruling machine,..... Diploma.
John S. Wright, Chicago, for Atkin's automaton rake,..... Diploma.
E. A. Muller, Chicago, for apparatus for making high wines,..... Diploma.
Harper & Peats, Chicago, for model of fire and water-proof store,..... Transactions.
William Wells, Chicago, pair bevel wheels,..... Diploma.
James P. Smith, Chicago, for model for lake vessel,..... Diploma.
Leonard Woods, Millersburg, Iowa, for hedge trimmer,..... Transactions.
D. B. Cook & Co., Chicago, for railroad maps,..... Diploma.

METALLIC FABRICS, &c.

COOKING STOVE—FOR WOOD.

Newberry, Filley & Wiswell, Chicago, first premium,..... Diploma.

COOKING STOVE—FOR COAL.

Vincent, Himrod & Co., first premium,..... Diploma.

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PARLOR STOVE.

James R. Russell, Chicago, second premium,..... Transactions.

IRON FENCE.

Brooks & Onions, Chicago, first premium,..... Diploma.

BRASS WORK.

Walworth & Co., Chicago, first premium,..... Diploma.

DISCRETIONARY.

Vincent, Himrod & Co., for one lot forty stoves,..... Diploma.
Sheffler, Vandersall & Co., Plainfield, Will county, ... Transactions.
John C. Schooley, Cincinnati, Ohio, for refrigerator,..... Diploma.
Rayman & Ward, West Troy, Albany county, New York, for church bells,.. Diploma.
George W. Prickett. Chicago. for parlor grates,..... Medal.
Vincent, Himrod & Co., for "Forest Oak" cooking stove, tested in business office,..... Transactions.

WORKED METALS—AMERICAN MANUFACTURE.

IRON WIRE HURDLE FENCE.

H. Haight & Co., Chicago, first premium,..... Diploma.

WINDOW SPRING.

Danford Johnson, Chicago, first premium,..... Diploma.

LAMPS.

John W. Hitt, Mt. Morris, Ogle county, first premium,..... Diploma.

DISCRETIONARY.

John Durkin, Chicago, for nuts and bolts,..... Diploma.
Collins & Blatchford, Chicago, for lead pipe and sheet lead,..... Medal.
A. Algower, Chicago, for wire sewing stand and basket,..... Transactions.
Lewis Lillie, Troy, New York. for safe..... Medal.
Filkins, Runyon & Barker, Chicago, for one card assorted locks, ... Transactions.
Holliday Windmill Company. South Coventry, Connecticut, for one mill., Transactions.
Uhrlaub, Sattler & Co , Chicago, for case guns,..... Transactions.
P. W. Gates, Chicago, for screw cutting machine,..... Transactions.

FINE WORKED METALS, &c.

WATCHES.

J. T. & E M. Edwards, Chicago, first premium,..... Diploma.

CLOCKS.

Wm. A. Hendricks, Chicago, first premium,..... Diploma.

SILVER PLATE.

Charles W. Colson, Chicago, silver plating,..... Transactions.
F. N. Dubois, Chicago ..... Transactions.
J. T. & E. M. Edwards, Chicago,..... Transactions.
[illegible] Chicago, (informal entry) discretionary premium,..... Diploma.

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L. H. Cordry & Co., Chicago, lightning rod points, ... Transactions.
Hoard & Avery, Chicago, case of jewelry, watches, &c., ... Transactions.
I. P. Pionier, Chicago, lightning rod points, ... Transactions.
G. T. Abbey, Chicago, lot guns, ... Transactions.
E. P. Tenney, Racine, Wisconsin, electro conductors, ... Transactions.
John Stimson, New York, New York, knife sharpener, ... Transactions.
E. F Bacon, Chicago, door plates, ... Transactions.
C. Clapp, Chicago, brass trimmings, ... Transactions.
C. Piquette, Detroit, Michigan, gold pens, ... Transactions.

PHILOSOPHICAL INSTRUMENTS, &c.

DENTISTRY.

J. A. Kennicott, Chicago, first premium, ... Diploma.
A. P. Sales, Chicago, second premium, ... Medal.

OPTICAL APPARATUS.

Wm. Buffham, Millburn, Lake county, first premium, ... Diploma.

BALANCE.

Held & Brother, Chicago, first premium, ... Diploma.

MACHINERY.

STEAM ENGINE.

P. W. Gates, Chicago, portable engine, first premium, ... Diploma.
W. J. & A. M. Granger, Chicago, first premium, ... Diploma.

FIRE ENGINE.

Cowing & Co., Seneca Falls, New York, first premium, ... Diploma.

HOSE REEL.

Hope Hose Company, Chicago, first premium, ... Diploma.

ORNAMENTAL FOUNTAIN.

H. & O. Wilson, Chicago, first premium, ... Diploma.

BALANCE SCALE.

E & T. Fairbanks, St. Johnsburg, Vermont, first premium, ... Diploma.

LATH MACHINE.

Blakie & Clark, Chicago, first premium, ... Diploma.
G. B. McGinnis, Chicago, second premium, ... Medal.

SHINGLE MACHINE.

C. K. Morrill & Co., Chicago, first premium, ... Diploma.
A. W. Riley, Chicago, second premium, ... Medal and Transactions.

STAVE MACHINE.

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FARM PUMP.

A. J. McReynolds, Havana, Mason county, first premium,..... Diploma.
Tryon & Warner, Chicago, second premium..... Medal.
Silsby, Mynders & Co., Seneca Falls, New York, third premium,..... Transactions.

PORTABLE FLOURING MILL.

Charles W. Brown, Boston, Massachusetts, first premium,..... Diploma.

MORTICING MACHINE.

Geo. G. Chase, first premium,..... Diploma.

TENONING MACHINE.

Geo. G. Chase, first premium,..... Transactions.

DISCRETIONARY.

Wm. H. Hunt, Chicago, sash machine,..... Transactions.
Horace A. Chase, Elgin, portable grist mill,..... Diploma.
Warren Aldrich, Lowell, Massachusetts, engine lathe,..... Diploma.
To the same, for iron planer,..... Diploma.
I. M. Singer & Co., New York, New York, for sewing machine,..... Medal.
G. T. Pearson, Chicago, spoke dressing machine,..... Diploma.
C. G. Sheffield, Chicago, type machine,..... Transactions.
To the same, for type,..... Medal.
E. & T. Fairbanks & Co., for scales,..... Transactions.
Blakie & Clark, bolting machine,..... Transactions.
J. Raith & Co., Chicago, for duster,..... Medal.
G. B. McGinnis, for lot pumps,..... Diploma.
J. G. Nicolay, Pittsfield, Pike county, for shot charger,..... Transactions.
S. J. Rockwood, Chicago, for upsetting machine,..... Medal.
Holliday Windmill Company, Chicago, for force pump,..... Transactions.
A. L. Felch, Columbus, Ohio, for hub boring machine,..... Transactions.
James Hemming, Richmond, Iowa, (?) for self-regulating windmill,..... Transactions.

VEHICLES, &c.

BEST DISPLAY CHOICE CARRIAGES.

Welch & Mendsen, Chicago, (an informal entry) committee awarded first premium,..... Diploma.

BEST DISPLAY CHOICE BUGGIES.

Ellithorpe, Kline & Bradley, Chicago, first premium,..... Diploma.

SLEIGHS.

Philip Hicks, Chicago, first premium,..... Diploma.

FARM WAGON.

John Boorman, Chicago, first premium,..... Diploma.
H. Whitbeck & Co., Chicago, second premium,..... Medal.

DISCRETIONARY.

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Welch & Mendsen, omnibus..... Diploma.

Ellithorpe, Kline & Bradley, for crane necked coach, ... Medal.
To the same, for open buggy,..... Transactions.
H. H. Smith & Co., Pekin, Tazewell county, covered buggy,..... Diploma
To the same, for barouche, ... Medal.
Welch & Mendsen, barouche, ... Medal.
To the same, for crane necked coach,..... Transactions.

CABINET WARE.

OFFICE CHAIR.

James Finerty, Chicago, first premium,..... Diploma.

DISCRETIONARY.

Wm. Tooley, Chicago, for counting house desk,..... Transactions.
Sternberg, Isidore, Chicago, for bureau, ... Transactions.
D. L. Jacobus & Brothers, Chicago, for French desk,..... Medal.
To the same, for sideboard,..... Special commendation.
To the same, for rocking crib, ... Transactions.
Hitchcock & Porter, for book case,..... Transactions.
Adams & Clark, Chicago, spring bottom bedstead, ... Transactions.

MUSICAL INSTRUMENTS.

BOUDOIR PIANO.

Frederick Luhrsen, Chicago, first premium,..... Diploma.

SQUARE PIANO.

Higgins Brothers, Chicago, first premium,..... Diploma.

VIOLIN.

R. G. Greene, Chicago, first premium,..... Diploma.
To the same, for melodeon, first premium.

COOPERS', CARPENTERS' AND BASKET MAKERS' WARE.

PINE WARE.

Dimmock & Gould, Moline, Rock Island county, first premium,..... $3

CEDAR WARE.

Rossiter & Phalman, Chicago, first premium, ... 3

OAK WARE.

R. C. Rouncaville, Chicago, first premium,..... 3

FLOUR BARREL.

Hoyt & Smith, Batavia, first premium,..... 3
To the same, for tight barrel, first premium, ... 3

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FURRIERS', CURRIERS', SADDLERS', SHOEMAKERS' AND TRUNK MAKERS' PRODUCTS.

TRUNKS.

Geo. Glasner & Co., Chicago, first premium,..... ..... Diploma.

CARPET BAG.

James C. Garland, Chicago, first premium, ... Diploma.
To the same, for ladies' satchel, first premium,..... Diploma.

GENT'S WINTER BOOTS.

John Keller, Chicago, first premium,..... .... Diploma.

LADIES' WALKING SHOES.

Charles E. Wiswell, first premium,..... Diploma.

GLOVES.

G. Kruger, Chicago, first premium,..... ..... Diploma.

CARRIAGE HARNESS.

Benjamin Cope, Chicago, gold mounted, first premium,..... Diploma.
Andrew McDonald, Waukegan, silver mounted,..... Diploma.

RIDING SADDLE.

S. P. Smith, Kaskaskia, first premium,..... ..... Diploma.

HARNESS HORSE COLLAR.

Wm. Speight, Chicago, first premium..... ..... Diploma.

DISCRETIONARY.

Kelly & Blackburn, Chicago, for leather,..... Transactions.
Ideson, Jordon & Bellows, Chicago, for rubber goods,..... Two diplomas.
John C. Garland, valise and hat box,..... .. Transactions.
J. A. Smith & Co., Chicago, rubber hose,..... Transactions.

BOOKBINDERS', PAPERMAKERS', &c., PRODUCTS.

SUIT BOUND BOOKS.

A. H. & C. Burley, Chicago, first premium,... .... Diploma
G. T. Brown, Alton, for frosting and burnishing, and for improvement in ledger,..... ..... Diploma.

LETTER, CAP AND NOTE PAPER.

G. H. & L. Laflin, Chicago, first premium,..... Diploma.

PAPER HANGINGS AND PAPERS

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CURLED HAIR MATTRASS.

Beecher, Hollister & Wilkins, first premium,..... Diploma.

DISCRETIONARY.

Munson & Bradley, Chicago, ornamental book binding,..... Medal.
Bradner, Warren & Co., Chicago, for wrapping paper,..... Transactions.
Beecher, Hollister & Wilkins, window curtains,..... Medal.
Culver & Page, sample of embossing,..... Diploma.
A. H. & C. Burley, for R. R. Register,..... Transactions and high commendation.

CEREMIC, CHEMICAL AND NATURAL PRODUCTS.

STONE WARE.

A. G. Burley, Chicago, first premium,..... Diploma.

STAINED GLASS.

Ferdinand Stolz, first premium,..... Diploma.

TILES.

James Ellis, Chicago, first premium,..... Diploma.

DISCRETIONARY.

L. H. Hamblen, Chicago, for locomotive lamp,..... Medal.
E. H. Castle, Chicago, for fancy pitcher,..... Transactions.

CHEMICALS, &c.

GLUE.

C. Wahl & Sons, Chicago, first premium,..... Diploma.

PRUSSIATE OF POTASH.

J. V. Z. Blaney, first premium,..... Diploma and high commendation.

SOAP.

Hough Ritche, Chicago,..... Diploma,
Anderson & Co., Chicago,..... Diploma.

[The committee did not determine which of the above lots was best, but advised giving diploma to each.]

LIME.

Stephen White, Lyons, Cook county,..... Transactions.
David Martin & Co., Springfield,..... Transactions.
Norman Phillips, Damascus, Stephenson county,..... Transactions.
J. Lock & Brothers, Ottawa,..... Transactions.

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DISCRETIONARY.

James J. Butler, Cincinnati, Ohio, for writing ink, first premium,..... Diploma.
[This was tested in the business office, and pronounced a most excellent article.]

MISCELLANEOUS—WOOD AND STONE.

DRESSED STONE.

Wm. R. King & Co., Chicago, first premium,..... Diploma.

MILL STONE.

Hayward & Travis, Chicago, first premium,..... Diploma.

GRINDSTONE.

Stilwell & Sawyer, Chicago, first premium,..... Diploma.

POLISHED MARBLE.

H. & O. Wilson, Chicago, first premium,..... Diploma.

SHINGLES.

Wilcox & Wood, Chicago, first premium,..... Diploma.
Rawson & Bateham, Chicago,..... Special notice and Transactions.

DISCRETIONARY.

H. & O. Wilson, for statuary,..... Medal.
Singer & Talcott, Chicago, for boat load of Athens stone,..... Medal.
Archibald Kenyon, for tomb stone, inlaid with pearl,..... Transactions.

NATURAL PRODUCTS.

BEST COLLECTION OF SPECIMENS ILLUSTRATING THE GEOLOGY OF THE STATE.

Illinois Central Railroad Company,..... Diploma and special thanks of the society.

GREATEST AND BEST COLLECTION OF NAMED INSECTS.

Robert Kennicott, West Northfield, Cook county, first premium, Diploma and $10

ZOOLOGICAL COLLECTION.

Robert Kennicott, first premium,..... Medal and 8

BOTANICAL COLLECTION.

Rev. A. M. Stewart, first premium,..... Diploma and 8

SUIT OF MINERALS FROM ALL PARTS OF THE WORLD.

C. P. Rodgers, Marengo, first premium,..... Diploma and 5

SUIT OF FOSSILS.

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Robert Davis, Chicago, butterflies,..... Transactions.
Emil Claussen, Council Hill, for botanical collection,..... Transactions and $5

SPECIAL AWARDS BY EXECUTIVE BOARD.

B. F. Johnson, esq., of Illinois Central Railroad Company, special thanks of the society and,..... Silver cup.
Mr. Werthern, Dunleith Station, specimens Natural History, Diploma and Transactions.
Mr. Hills, Station Agent, Galena, for same,..... Transactions.
Station Agent I. C. R. R., Bloomington, for same,..... Transactions.
Emil Claussen, for same,..... Diploma.
Mr. Bourne, Amboy Station, for same,..... Transactions.
Mr. Crocker, Maroa Station, for same,..... Transactions.
Station Agent, Duquoin, for same,..... Transactions.
S. Washburne, Ramsey, for same,..... Diploma and Transactions.
Station Agent, De Soto, for same,..... Transactions.
D. H. Brush, Carbondale, for same,..... Diploma and Transactions.
Col. L. W. Ashley, Duquoin, for same,..... Transactions.
D. M. McConnell, Makanda, for same,..... Diploma and Transactions.
S. S. Condon, Jonesboro, for same, ... Diploma.
F. Ashley, Jonesboro, for same,..... Transactions.
Judge Cochrane, Jonesboro, for same,..... Transactions.
Geo. Poor, Cairo, for same,..... Diploma and Transactions.
Mr. Mackey, Station Agent at Scales Mound, for same,..... Transactions.
Mr. Seaver, Station Agent, Chebanse, for same,..... Transactions.
Station Agent, Nora, for same,..... Transactions.
Dr. Morgan, Nora, for same,..... Transactions.
A. H. Ulffers, of Illinois Geological Survey, Springfield, collection shells, Diploma.

FLOWERS AND PLANTS.

CUT FLOWERS—GREATEST AND BEST VARIETY NAMED.

Samuel Brooks, Chicago,..... Transactions.

UNNAMED.

J. A. & C. Kennicott, The Grove Nursery, first premium,..... $8

DAHLIAS—GREATEST AND BEST VARIETY.

Samuel Brooks, first premium,..... 8

DAHLIAS—TWELVE DISSIMILAR BLOOMS.

Samuel Brooks, first premium,..... 4

DAHLIAS—BEST SIX BLOOMS.

Sarah Brooks, Chicago, first premium..... 6

VERBENAS—GREATEST AMD BEST VARIETY.

Wm. Chalmers, Ottawa, first premium,..... 4

BEST DISPLAY VERBENAS.

Miss Alice M. Kennicott, West Northfield, first premium..... 4

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PANSIES.

Samuel Brooks, first premium,..... $4

COLLECTION GREEN HOUSE PLANTS.

Wm. Chalmers, first premium,..... Diploma and 5

VASE CUT FLOWERS.

Miss Alice M. Kennicott, first premium,..... 4

COLLECTION WILD FLOWERS, NAMED.

Amasa J. Kennicott, The Grove, first premium,..... 4

DISCRETIONARY.

J. A. & C. Kennicott, for seedling aster,..... 1
Mathias Tilman, gardener to Lewis Ellsworth & Co., Naperville, for floral design,..... Diploma and 15
Samuel Brooks, for verbenas,..... 1
J. A. & C. Kennicott, specimen of aconitum,..... Transactions.

MISCELLANEOUS—DISCRETIONARY.

Francis Hudson, Chicago, for case wigs,..... Medal
J. D. Scriber, Chicago, for honey dew tobacco,..... $3
P. B. Warner, rain water filter,..... Medal.
Hooker & Jones, for bird cages,..... $3
James Ellis, Chicago, asphaltum coffin,..... Medal.
Mathias Tilman, for bird cage,..... Transactions.

AWARDS ON FIELD CROPS

Made at the meeting of the Executive Committee of the Illinois State Agricultural Society, Jan. 11th, 1856.

BEST CROP OF OATS—NOT LESS THAN FIVE ACRES.

Joseph E. Kennicott, Elk Grove, Cook county, Illinois, first premium,..... $25
John H. Horsford, Ottawa, discretionary,..... Medal.

BEST ONE-HALF ACRE POTATOES.

O. B. Galusha, Lisbon, Kendall county, first premium,..... $25
Harrison Hancock, Groveland, Tazewell county, second premium,..... 10

BEST FIVE ACRES OF CORN.

Harrison Hancock, first premium,..... Diploma and 50

A true copy from the award books.

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COMMITTEE REPORTS, FAIR OF 1855.

ILLINOIS CATTLE.

SHORT HORNS.

The committee say that the general character of the stock exhibited to them was highly creditable, though some of the animals did not appear to have been as well fed and kept as the fine qualities of the breed would justify. The committee would remark, with especial pleasure, that the young cattle, in particular, exhibited high qualities and marked excellence.

All of which is respectfully submitted by the committee.

ROBERT W. SCOTT, *Chairman.*

REPORT ON HORSES.

THOROUGH-BRED.

The awarding committee on thorough-bred horses—class B, No. XI—at the annual fair of the Illinois State Agricultural Society, held in Chicago, October, 1855, submit the following report:

That owing to the fact that heretofore no considerable degree of accuracy had been observed in the entry and classification of horses, and no definite rule adopted to determine the proper class in which a horse presented for entry should be placed, they found the duties devolving upon them very unpleasant, and not to be discharged with satisfaction, even to themselves. They found entered in this class, as *thorough-bred*, many splendid roadsters, of the Morgan, Vermont, Black Hawk and Belfounder stock—none of them, of course, thorough-bred, but most of them very superior animals, in their proper class.

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A "thorough-bred horse" is one whose entire blood is traceable to some standard authority, as a record of pedigrees. The only such standard authorities are the American and British Turf Registers and Stud Books.

Your committee believe the principal object of all such exhibitions of stock as those of this society to be *comparison*—placing different races, or varieties of the same race, of animals together, and thus enabling individuals to form intelligent opinions as to the comparative merits of each. This can be attained in no other way than by understanding, with certainty, the race or variety to which each animal exhibited may belong.

It will be readily seen that the adoption of, and strict adherence to, the rule, as stated above, will give us one variety of the horse for examination and comparison which has been bred for a definite purpose, with great care, for many years.

The uses to which the horse is applied by man indicate very clearly the distinctive varieties of the animal, and furnish the only good reason for establishing the three classes named in your premium list, viz: "Thorough-bred horses," "horses of allwork" (roadsters) and "draught horses." The first, bred for the turf, of pure racing blood; the second, of mixed blood, and frequently, in the best specimens, almost thorough-bred, designed for general purposes for the road, in harness and under the saddle, and requiring not the long gallop and racing stride of the first, but the middle gaits of the trot or pace, or short gallop; the third, requiring great weight of carcase and conformation of skeleton, which would totally unfit him for the services required of either of the others.

With these views your committee proceeded to discharge their duties. With the exception of those comprised in the lot "stallions four years old and over," the premiums were awarded to animals whose pedigrees, as presented, were satisfactory, though not in all cases as authentic as is desirable. The statements (written and on file) of the exhibitors, where no discrepancy could be detected, were received as true.

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them to be not "thorough-bred," your committee, after consultation with the officers of the society, thought it best to make the awards.

Your committee further deem it their duty to suggest that a copy of each of the works named above, to wit: the American and British Turf Registers and Stud Books, ought to be in the possession of the society, so that committees may have an opportunity of referring to them when deciding on pedigrees. Much good would thus be accomplished, and much difficulty and unpleasant feeling on the part of both committees and exhibitors avoided, while there would be much more confidence, generally, in the justice and propriety of your awards.

Respectfully submitted,

JOHN P. REYNOLDS, Jr., *Chairman.*

DOMESTIC BREAD, CAKES AND PRESERVES.

The committee are compelled to express their regret that there should appear to be so few ladies in Illinois capable of making bread, cakes and preserves. They hope that some other cause than want of ability to make these important articles, is the reason of the smallness of the exhibition. The specimens of preserves presented are very few in number. Two ladies, however, have distinguished themselves in their desire to add to your show by liberal contributions of preserves. We therefore recommend that a silver cup, worth ten dollars, be presented to Mrs. N. P. Iglehart, of Chicago, and another, of the same value, to Mrs. E. P. Vail, of the same place, for their enterprise and patriotism.

BRONSON MURRAY, *Chairman.*

ILLINOIS BREAD, &c., &c.

The committee are surprised and disappointed that the bakers

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perior a character as to convince us that, had all the bakers in the state sent the best specimens of their art, he would still have carried away the palm. For this reason, and because we do not believe that any mere money premium will express a proper appreciation of the invariable excellence of every article in the bread, cracker and cake line, for which the society offered a premium, the committee recommend the executive board to depart from their premium list, and instead of giving Mr. Kendall the money premiums, to allow him the diploma of the society for the very best bread of all kinds, cakes of all kinds and crackers of all kinds, and for the highest skill in his business.

BRONSON MURRAY, *Chairman.*

BUTTER AND CHEESE.

STATEMENT OF CLINTON G. TAYLOR.

My dairy is composed of thirty cows. As soon as the prairie grass is of sufficient growth for feed, I wean all my calves, which I feed upon new milk for a few days, until they learn to drink—then with sour milk or whey. I make butter until about the first of July. Then cheese during the warm weather, to about the first of September. Then butter during the fall.

As soon as the milk is drawn from the cows it is taken to my milk cellar, and strained into tin pans. The pans are placed upon milk racks, which is much better than shelves. After the milk is set about thirty-six hours the cream is taken off and immediately churned. This is done in a thermometer churn, at a temperature of sixty deg. At this temperature it requires about fifty minutes to churn. After taking the butter from the churn it is carefully worked dry with a ladle and weighed. To each pound of fresh butter I add, in cool weather, one ounce of dairy salt, which is evenly worked into the butter. After remaining in the tray about twenty-four hours it is again worked and packed. On top of my firkins or stone jars (as I use both) is placed a linen cloth, and upon the cloth about one-half inch of salt; thus exclude the air, and the work is done. No churn should be used unless a thermometer is

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off from the pans as soon as the milk begins to curdle, and soon churned, as it gains nothing by delay. It is impossible to make good butter from bitter cream. In warm weather milk pans should not be placed upon shelves, as the animal heat in the milk soon warms the board, thus causing the milk to curdle before the cream all rises.

I have had much experience in butter making; having been in the business, most of the time, for twenty years—ten in New York. Feed for cows has been wholly prairie grass. Twelve of the cows fed pumpkins once a day; the others refuse to eat them.

Cheese Making.—My milk is strained into a wooden vat, and sufficient rennet added to curdle it in about forty minutes. The milk should be blood heat when set, but it is usually a little cooler. After well curdled it is cut into square chunks of about an inch in size. In about thirty minutes the curd is carefully broken up with the hand. In about twenty minutes after it is broken more finely, and the curd allowed to settle; then both curd and whey dipped into a straining sink, and the whey run off. Thus far in the evening. In the morning the milk is used as before to the time of dipping off. Instead of this the whey is dipped from the top of the curd and warmed to a temperature of about one hundred degrees, and the morning curd some hardened with warm whey—others dipped from the curd again and heated to one hundred and forty degrees. In the meantime the night curd is cut and crumbled fine, to about the size of kernels of corn, and mixed with the morning curd, and both well mixed together and scalded. After frequent stirring, for an hour, the curd is dipped into the straining sink and drained, and one pound of salt to curd for twenty pounds of cheese is added, and when quite cold removed to the hoop and press.

I use the tin hoop, as it is easierkept clean, and use the self-pressing press. In this press a cheese from ten to one hundred pounds can be pressed to perfection. After the cheese has been in the press about six hours, it is taken out and bandaged all over with strong cloth and returned to the hoop and press, and remains

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They are then basted with a preparation of melted butter, colored with annatte. The cheeses are rubbed and turned every day for a month; then every other day, until ready for market.

Respectfully submitted,

C. G. TAYLOR.

PLEASANT RIDGE, ROCK ISLAND COUNTY, ILL., Oct. 6, 1855.

REPORT ON FRUIT.

In the absence of a formal report from the chairman of the fruit committee, we extract the following from Hovey's Magazine of Horticulture, published in Boston, Massachusetts. C. M. Hovey, the editor, was a member of the committee on fruit, and his remarks may therefore be considered official, while his high reputation as a pomologist gives great weight to his opinions.

We may further add, that those eminent horticulturists, Charles Downing, of New York, Elliott and Warder, of Ohio, John Jay Smith and Dr. Brinckle, of Pennsylvania, and the Berckmans, of New Jersey, with many others, were present at the fair, as the invited guests of the society, and expressed opinions, in their correspondence and publications, very much in accordance with those of Mr. Hovey, given below.

* * * "The exhibition was held in a small grove, bordering upon the river, about four miles from the city—the only spot where a tree is to be seen on the broad prairie. The grounds comprised about forty acres, and were conveniently arranged for the accommodation of stock, with suitable buildings for the display of the various departments of the fair. To the energy of the secretary, Dr. Kennicott, is the society indebted for much of the completeness of the arrangements, and much of the success of the exhibition. The attendance was very large—a crowd of persons besieging the gates from morning till night; and the receipts exceeded even those of the New York state fair. It was only, we

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trip here allowed us to do. The display of apples was large, comprising about a hundred and fifty kinds. Of pears there were but few, and these mostly over-ripe. The only remarkable specimens were some huge Uvedale's St. Germain, which weighed nearly two pounds each, showing the size they attain in the deep prairie soil. Grapes were not quite so abundant as we expected to see, but it was rather late in the season for good samples.

"The principal exhibitors of apples were Messrs. Stewart & Son, of Quincy, and Dr. Pennington, of Whiteside. The former had the greatest number of kinds, but the latter had the finest specimens, which obtained the first prize. In these two collections were very superior specimens of Bellflower, Vandevere, Fall Pippin, Republican Pippin, Ortley, White Bellflower, Rambo, Rawle's Jenet, Spitzenburg, Fallenwalder and other famous western kinds. What few specimens of Baldwin, Hubbardston, Nonesuch and some other eastern varieties we noticed, were not so fine as we have seen at home. Some superb heath peaches were exhibited by Messrs. Stewart that measured a foot in circumference. Seedling apples were exhibited by different cuitivators, but only one out of all of them appeared to be of any value; this resembled very much the Fall Pippin, and was said to be a seedling fruit."

PAINTINGS AND DRAWINGS—IN RELATION TO DAGUERREOTYPES.

The committee would state, that there are so many creditable pictures offered that it is very difficult to decide which are the best. In deciding upon the merits of the different lots we take them as a whole. We would observe, that the daguerreotypes offered by Mr. Kelsey, of Chicago, and Mr. Balch, of Joliet, are deserving of great praise.

JAS. G. WRIGHT, *Chairman.*

ILLINOIS LANDSCAPES, IN OIL.

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NATURAL MATERIAL.

BEST COLLECTION ILLUSTRATING THE GEOLOGY OF THE STATE.

We award the premium to the Illinois Central Railroad Company. They exhibited specimens of minerals, rocks and soils from over one hundred and fifty localities, collected by their station agents along the whole line of their roads, highly interesting and valuable.

NATIVE WOODS.

There were fine lots of woods, vines, nuts, leaves, &c., collected for the Illinois Central Railroad Company, by D. M. McConnell, Makanda; D. H. Brush, Carbondale; George Poor, Cairo; Salmon Wasl burn, Ramsey; and several others.

A valuable and useful collection, showing that even the "Prairie State" is not destitute of good timber. In this collection there was a portion of the vine of a trumpet creeper, (*tecorna radicans*,) from near Cairo, which measured over one foot in diameter. Clinging to this huge vine was another vine—the poison ivy, (*rhus toxicodendron*)—fully three inches in diameter. There was, also, a section of wiid grape vine, from Southern Illinois, that measured seven inches in diameter.

NAMED INSECTS.

Premium awarded to Robert Kennicott for his several hundred correctly labeled Illinois insects. An exceedingly interesting collection.

Robert Davis, of Chicago, exhibited a case of well mounted butterflies.

BOTANICAL COLLECTIONS.

Premium and diploma awarded to Rev. A. M. Steward, for the best arranged herbarium.

We award five dollars to Emil Clausen, of Council Hill Station, for a fine collection of plants, beautifully arranged and correctly labeled, gathered in that vicinity. There were very large collections of plants, especially of grasses, collected by the station agents of the Illinois Central Railroad.

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bacco, from Southern Illinois, with a number of canes from *Illinois cane brakes*, with specimens of the giant grasses of Southern Illinois, attracted much attention.

ZOOLOGICAL COLLECTIONS.

The committee award the premium and diploma to Robert Kennicott, for his collection of shells, insects, reptiles, birds and mammals; many of which were very interesting, several being new to science.

Besides the above, the Illinois Central Railroad Company had collected, through their station agents, under the supervision of Robert Kennicott, an extensive and valuable show of the zoology of Illinois.

A large collection of correctly labeled Illinois shells were exhibited by H. A. Ulffers, of the state geological survey. Dr. Roe, of Bloomington, also exhibited a beautiful collection of shells.

MINERALS.

To C. P. Rodgers, of Marengo, the premium is awarded for the best collection of minerals, from all parts of the world. William Windler, of Chicago, had four magnificent specimens of quartz rock.

Some unusually fine specimens of Galena lead ore were on exhibition by the railroad company, collected by Mr. Werthorn, of Dunleith, Mr. Hills, of Galena, and other station agents of the Illinois Central Railroad.

Prof. Blaney exhibited a huge basket, loaded and studded with splendid crystals of prussiate of potash, (*ferrocyanate of potassa*,) manufactured at his chemical works, in Chicago.

FOSSILS.

Dr. Roe, of Bloomington, is entitled to a premium for the best collection of fossils.

C. P. Rodgers had a portion of the under jaw of a mastodon on exhibition. Everything is interesting that belonged to these wonderful giants of the past.

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No award; the committee not being able to decide which was really the best variety of coal on exhibition.

There was some fine Morris coal, from a stratum seven feet in thickness.

Some fine coal from Carbondale was sent by the agents of the Illinois Central Railroad Company. The Walaga Coal Company had good specimens of their coal on exhibition.

In the opinion of the committee, one of the most interesting and attractive features of the state fair, at Chicago, was the extensive collections illustrating the zoology, botany and mineralogy of Illinois. Great credit is due the officers of the Illinois Central Railroad Company for their liberality in rendering essential assistance in forwarding the enlightened wishes of the president and corresponding secretary of the Illinois State Agricultural Society in getting together this exceedingly valuable collection. The thanks of the community are especially due the agricultural society's agent, Robert Kennicott, a promising young naturalist, through whose untiring energy and perseverance the collection was principally made, for who but young Kennicott could or would have got together, in so short a time, such a collection of the reptiles, fishes, birds, insects and mammals of Illinois—many of which, too, were living.

It would be difficult to estimate the amount of real good the exhibition of the magnificent collections of living serpents—"snakes"—alone did. Many persons we heard express their surprise at finding only the rattlesnakes, in the cases labeled "poisonous;" while they saw many others which *they* had ignorantly considered the most poisonous labeled "harmless." "Can it be possible," said an intelligent farmer, "that after all the stuff we have heard, these 'blow snakes,' 'copperheads' and 'moccasins' are not poisonous—that they are really harmless; and more our friends than enemies—destroying many insects and mice that do us farmers so much damage!"

Here we have a sample of the legitimate fruits of these exhibitions. Knowledge, when addressed to the mind through the sense of right, is the most certain of being received, and the most lasting when received.

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Society in this department of useful knowledge, and go and do likewise.

P. R. HOY,
Chairman of Committee.

CEREMIC, CHEMICAL AND NATURAL PRODUCTS.

The committee, Dr. Andrew McFarland and Dr. E. R. Roe, say as follows:

ASPHALTUM, DRAIN TILE, &c.—James Ellis, Chicago.—A valuable and economical composition, healthful in its effects upon the atmosphere, and very valuable in the construction of drains, cellar floors, sidewalks, etc., and should be brought into general use.

PRUSSIATE OF POTASH—Dr. Jas. V. Z. Blaney, Chicago.—A very superior article, tastefully prepared for exhibition. A manufacture of very considerable consequence; for which Dr. Blaney deserves high commendation.

COMPOSITION FOR ROOFING—Abram Davis, Chicago.—We consider Mr. Davis' composition a good article for a secondary covering to roofs previously tinned; it having the property of preventing the effects of rapid oxidation, as well as being a safeguard against fire.

BUTLER'S WRITING FLUID—Cincinnati, Ohio—This ink (a case of which was presented to the society) was referred to the corresponding secretary and the clerks in the business office. The report of the latter was unanimous in its favor, and, after using it over a year, the corresponding secretary has seen no reason to doubt the correctness of the decision.

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STATEMENTS OF FIELD CROPS.

PREMIUM CORN CROP.

Harrison Hancock, Groveland, Tazewell county.

The amount of corn per acre was over 120 bushels—six hundred one and a half bushels on the five acres; variety, white gourd seed; soil, rather clayey; no manure used; plowed nine inches deep; well harrowed down; laid off in rows 4 by 3½ feet; harrowed over once, when corn was two inches high; afterwards plowed out four times, and the weeds cut out once; planted 10th day of May; whole amount of labor until cribbed, thirty days, or six days to the acre, at a cost of 75 cents per day.

PREMIUM CROP OF OATS.

ELK GROVE, COOK COUNTY, ILL.,
February 4th, 1856.

Corresponding Sec. Ill. State Agricultural Society:

I certify that the five acre field of oats, the crop of which I entered for premium at the 3d annual fair of the Illinois State Agricultural Society, yielded four hundred and fifteen bushels, or eighty-three bushels per acre. The soil is a heavy loam.

Condition—clean corn stubble, (the seventeenth consecutive crop.) Quantity of seed—fifteen bushels, or three bushels per acre. Kind of seed—Black Tartarian. Time of planting—first of April. Mode—sowed broad cast, and harrowed in, without plowing. Weighed in merchantable condition.

J. E. KENNICOTT.

Sworn to and subscribed before me, this 9th day of February, A. D. 1856. B. R. B. MINOR, *Justice of the Peace.*

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ELK GROVE, COOK COUNTY, ILL.

tered for premium at the third annual fair of the Illinois State Agricultural Society. D. Y. NASON.

Sworn to and subscribed before me, this 9th day of February, A. D. 1856. B. R. B. MINOR, *Justice of the Peace.*

I did not enter for premium my best field of oats, but the best raised at the least cost. My crop on plowed land, the second crop after manuring, was eighty-seven bushels per acre. This crop was the common black bush head oat. I believe that the Tartarian would have yielded something more, under like circumstances. I always plow for small grain in the fall, with a team of three good horses, worked abreast. My Tartarian oat is not the side oat described in the Ohio Farmer. Mine is a side oat, but has a thick, stiff straw, not much liable to lodge, very firmly set in the head, not liable to waste by being threshed by the heavy harvest storms, ripens from six to ten days later than the common oat, which is a very desirable quality to the prairie farmer, who has a large harvest and but little help; it enables him to get his wheat and white oats out of the way before the Tartarian suffers.

Respectfully, J. E. KENNICOTT.

John H. Hosford, of Ottawa, La Salle county, took the second premium, for crop of oats—eighty bushels and eight lbs. per acre. The soil, good dry prairie, had been under the plow for seventeen (17) years in succession; for last ten years an alternate crop of corn and oats. For this crop the ground was well plowed the fore part of April; 3½ bushels seed sown to the acre, and well harrowed in; the variety being one produced on the farm, with stiff straw, and consequently not liable to lodge. The grain weighs 38 pounds to the measured bushel.

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BEST HALF ACRE POTATOES.

O. B. Galusha, Lisbon, Kendall county, Illinois.

The ground, which is flat prairie, was broken up in July, 1854, plowed quite deeply again last spring, harrowed once the last of May, marked out with a plow, about 3½ feet each way, the seed dropped in the angles, and covered with hoes. The planting was done about the fifth day of June last.

The seed used was such potatoes as were not large enough for market or for table use. The seed was planted whole, and at the rate of about (3½) three and a half bushels per acre, (two of the smallest or one only of the next size being put in a hill.) These potatoes had no other cultivation than one plowing, with a single shovel plow, once in a row, each way. The yield of two acres, planted and cultivated as above, is about five hundred and seventy-five bushels. The tubers are uniformly fair and handsome, yielding, on an average, about ten per hill, of large size. The proportion of those too small for the table is about one bushel in twenty-five.

The quantity from the measured half acre was 141½ bushels.

Second premium on potatoes: Harrison Hancock, Groveland, Tazewell county.

Ground prepared same as described above, for corn; no manure; planted the 20th of May, in drills, at the rate of 16 bushels seed to the acre; plowed and hoed twice; amount of labor to the acre, 16 days; crop, 320 bushels.

This being the largest crop, would have received the highest award, had the committee been satisfied that the *quality* of the potatoes was equal to those exhibited by O. B. Galusha.

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PROCEEDINGS OF EXECUTIVE COMMITTEE, 1856.

SPRINGFIELD, JANUARY 9, 1856.

Present—H. C. Johns, president; C. W. Webster, J. Gage, W. Ross, Francis Arenz, vice presidents; John Williams, treasurer; S. Francis, recording secretary.

The treasurer made a verbal report of the condition of the treasury. Gross receipts, including balance in the treasury January 3d, 1856, $12,917 80; gross expenditures, $7,713 50; leaving a balance in the treasury of $5,204 20.

Several claims were presented and allowed, amounting to $142 78. Other bills were presented and ordered to be paid.

Adjourned till 8 o'clock, to-morrow morning.

THURSDAY MORNING, JANUARY 10.

Committee met.

Present—same as yesterday, and Vice President Strawn.

The subject of premiums for the next fair was taken up.

On motion of Mr. Arenz,

Resolved, That six thousand dollars be appropriated for premiums for the present year.

Resolved, That the arrangement and preparation of the premium list be confided to the president, with directions to call to his assistance such person or persons as he may think proper.

Resolved, That the society award premiums for the performances of the best band of music, and the best glee club, which shall be present at the next state fair.

On motion of S. Francis,

Resolved, That this society award premiums for the best hedges in this state, no hedge to be entered for premiums of a less length than forty rods.

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On motion, the president appointed Messrs. Francis, Gage and

The executive committee proceeded to arrange the departments for exhibition for the next fair:

1st Department—CATTLE: William Strawn, superintendent.
2d " HORSES: C. B. Webster, "
3d " SHEEP, SWINE AND POULTRY: J. M Blackburn, superintendent.
4th " AGRICULTURAL IMPLEMENTS: J. N. Brown, "
5th " FARM AND GARDEN PRODUCTS, FOOD, CONDIMENTS, &c.: P. L. Ward, superintendent.
6th " FRUITS AND FLOWERS: L. Ellsworth, superintendent.
7th " MECHANICAL—METAL WORKS, CABINET WARE, &c.: J. Gage, superintendent.
8th " MUSICAL INSTRUMENTS, PAINTINGS, &c.: Francis Arenz, superintendent.
9th " TEXTILE FABRICS: William Ross, superintendent.
10th " NATURAL HISTORY, GEOLOGY AND BOTANY: E. R. Roe, superintendent.
11th " MISCELLANEOUS: W. F. M. Arny, superintendent.
12th " PLOWING MATCH: Urial Mills, "

Adjourned till 2 o'clock P. M.

Committee met, pursuant to adjournment.

Present as before.

Mr. Francis, from the committee to mature a plan for examining hedges and giving premiums for the same, made the following report:

Resolved, That a committee of three be appointed to take into consideration the subject of hedging in this state, whose duty shall be to examine hedges in different parts of this state, and award premiums, as follows:

1. For the largest amount of well set and cultivated hedge, on one farm, a silver medal.

2. For the best hedge of 1000 rods and upwards, a silver medal.

3. For the best hedge of 40 rods and upwards, a silver medal.

Each person receiving a premium shall be required to furnish a statement of the manner of preparing the ground, setting the plants and cultivating the hedge; and all persons applying for premiums shall be required to furnish a similar statement.

Said committee shall examine and report on the practicability, value and general

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Resolved, That when the board adjourn, it shall adjourn to meet in Springfield, on Wednesday, the second day in April next.

Resolved, That the president be authorized to receive applications from such places as desire the location of the state fair, and that the subject of location be for the action of the executive committee, at its next adjourned meeting.

On motion of Mr. Ross,

Resolved That the president be paid $75 for his expenses as delegate of this society to the fair of United States Agricultural Society, at Boston.

Adjourned till to-morrow morning, 8 o'clock A. M.

Committee met, pursuant to adjournment.

Present—H. C. Johns, president; W. Strawn, C. W. Webster, W. Ross, J. Gage, vice presidents; John A. Kennicott, corresponding secretary; John Williams, treasurer; S. Francis, recording secretary.

Mr. Ross moved to take up the unfinished business in relation to premiums; which was done, and the premium list examined, and premiums on field products decided on.

Resolved, That the wine presented by Mr. Carpenter, of Kelly Island, be placed upon our list, and that a discretionary premium of a silver medal be awarded to him for the same.

The yeas and nays on the resolution were—

Yeas—Messrs. Johns, Kennicott, Webster, Ross and Francis.

Nays—Messrs. Gage and Strawn.

Several bills were presented, examined, and ordered to be paid.

Resolved That the board acknowledge its obligations for cases of seed from the agricultural warerooms and seed store of Elliott & Co., Cleveland, Ohio, containing three hundred and sixty varieties of field and garden seed; and as a testimonial of our confidence in the excellence of these seed, as manifested by their appearance, and the care with which they are put up, this society award to Messrs. Elliott & Co. their diploma and silver medal.

The board then adjourned to meet in Springfield, on 2d April.

SPRINGFIELD, APRIL 2, 1856.

Present—H. C. Johns, president; J. N. Brown, ex-president; J. Gage, J. M. Blackburn, C. W. Webster, vice presidents; John A. Kennicott, corresponding secretary; and S. Francis, recording

The corresponding secretary reported that ten dollars had been handed to him, by G. C. R. Otis, as a donation to the state agricultural society, to add to the premium of the best bee hives.

On motion, said donation was accepted, on the terms specified.

The reported premium list was read—Class A—Cattle.

Mr. Brown moved that the classes of all thorough-bred cattle be merged into one class and number, and that perfect pedigrees be furnished for all animals competing for premiums in this class. Carried.

The premium list in relation to cattle was amended and passed.

On motion,

Resolved, That the American and English Turf Register and Stud Book shall be the standard of reference for awarding committees on thorough-bred horses.

The premium list in relation to mules was read, amended and passed.

Adjourned till 2 o'clock P. M.

TWO O'CLOCK.

The board met.

Present as before, and Vice President William Strawn, and John Williams, treasurer.

The business for deciding upon a place for holding the state fair was taken up.

Applications and propositions were presented from Jonesboro, Salem and Alton. Explanations were made from gentlemen who were delegates from these localities.

The committee resumed the consideration of the premium list. After some progress it was laid aside, and the treasurer made his report.

On motion, the treasurer was directed to call upon Isaac Spear.

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SEVEN O'CLOCK P. M.

Committee met, pursuant to adjournment.

Present as before.

The president announced to the committee that he had just received a dispatch, with the information that Francis Arenz had deceased at the residence of Dr. O. M. Long, Jacksonville, Ill.

On motion, Messrs. Strawn, Kennicott and Gage were appointed a committee, by the president, to draft resolutions expressive of our regard for his worth and sorrow for his death, and directed to report to the committee to-morrow morning, at 9 o'clock.

The committee resumed the consideration of the premium list; when, after some time spent on it, it was laid aside, and took up the special order for locating the state fair. After several ballotings, Alton received a majority of the votes given.

Adjourned till to-morrow morning, at 7 o'clock.

WEDNESDAY MORNING, APRIL 3, 1856.

Present—H. C. Johns, president; J. N. Brown, ex-president; C. W. Webster, J. M. Blackburn, W. Strawn, J. Gage, vice presidents; J. A. Kennicott, corresponding secretary; and S. Francis, recording secretary.

The committee resumed the consideration of the premium list.

The subject of hedges being before the committee,

On motion,

Resolved, That the society change their premiums, offered at the meeting of the committee, in January last, for hedges, so as to provide that—

1st. For the largest amount of well set hedge, on one farm, the society's special gold medal and diploma shall be awarded.

2d. For the best hedge of 1000 rods and upwards, there shall be awarded the society's diploma and silver medal.

3d. For the best hedge, forty rods and upwards, there shall be awarded a silver cup, of the value of ten dollars; the said hedges to be of not less than two summers' growth.

Mr. Gage moved that the committee unanimously declare Alton to be the place for holding the next state fair; which was done.

The corresponding secretary presented the committee the follow-

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your co-operation in giving effect to the plan of which it treats. The outlines are general, but sufficient, it is hoped, to enable you to comprehend the main features of the plan. Should it strike you favorably, I would be glad if you would give it a helping hand, by bringing it before the proper society or societies in your state, for consideration.

As suggestive to the action of the society, and also as indicative of the means by which the plan may be forwarded, be pleased to see the accompanying rough draft of a resolution.

I need not, I am sure, waste words in argumentation on one hand, or in apologies on the other, upon an occasion like the present.

All I have to add is simply to submit the proposition to you that I have made to the agricultural interests of the country, and to ask such help in bringing it to a favorable issue as in your judgment may seem good.

With great respect, I have the honor to be,

Yours, &c., M. F. MAURY.

DR. J. A. KENNICOTT,

Chicago, Illinois.

On motion,

Resolved, That the society cordially approve of the plan submitted by Lieut. Maury, in the August number of the American Farmer, and of Prof. Henry, in the Smithsonian Institute, for extending to the land, for the benefit of agriculture, the system of meteorological observations, which has done so much for the improvement of navigation and commerce.

Resolved, That we commend the plan to the favorable consideration of our brother farmers in other states, and request the members of congress in our own state to procure that degree of encouragement for agriculture and sanitary meteorology of the seas, and that the president of this society be and he is hereby requested to forward a copy of this resolution to each member of the congressional delegation from this state.

The committee, after further examination of the premium list, examined and ordered several bills to be paid, and adjourned till 2 o'clock.

TWO O'CLOCK, P. M.

Committee met.

Mr. Strawn, from the committee on that subject, reported the following resolutions:

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courteous and able, and always in his place; the society one of its most talented, energetic and ardent friends; the state and community at large one of its most honorable, respected and revered citizens; and that while we bow in humble humility and awe before Almighty God, we tender our most sincere and heartfelt sympathies to the family and friends of the deceased—hoping that their and our loss is his gain.

Resolved, That a copy of these proceedings be sent to the family and friends of the deceased, to the Prairie Farmer, Illinois Farmer and to the papers in Beardstown, Jacksonville and Springfield, with the request that the same be inserted in the papers indicated.

These resolutions were unanimously adopted.

The premium list was again taken up.

On motion of Mr. Brown,

Resolved, That competition in all classes be open and free to citizens of all the states, and that the premium list be arranged to accord with this resolution.

Adjourned till 7 o'clock.

SEVEN O'CLOCK, P. M.

Committee met, pursuant to adjournment.

On motion,

Resolved, That the corresponding secretary prepare a report of the Transactions of the society, to be presented to the next legislature.

The examination and amendment of the premium list, and the naming of awarding committees, was continued and concluded.

On motion, the president, H. C. Johns, John Gage and S. Francis were appointed a committee for the examination of hedges, under the resolutions of the committee.

Adjourned.

ALTON, OCTOBER 4, 1856.

Committee met, pursuant to adjournment.

Present—H. C. Johns, president; W. Ross, C. W. Webster, J. M. Blackburn, L. Ellsworth, vice presidents; John A. Kennicott, corresponding secretary; S. Francis, recording secretary.

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The committee directed that the furniture, bedding, &c., used in the boarding room of the society during the fair, be sent to Springfield and put into the hands of the recording secretary.

The treasurer was authorised to procure a room in Springfield, as a place for the deposit of the society's property.

The committee acceded to the desire expressed by Dr. Kennicott that the treasurer advance him his pay up to January next.

Adjourned.

SPRINGFIELD, JANUARY 6, 1857.

Committee met, pursuant to adjournment.

Present—H. C. Johns, president; C. W. Webster, W. Strawn, J. Gage, L. Ellsworth, vice presidents; John Williams, treasurer; S. Francis, recording secretary; J. N. Brown, ex-president.

Mr. Childs' bill for diplomas was received, and ordered to be paid.

Several essays, offered for premiums, were read.

On the cultivation of the vine, by H. L. Brush, of Ottawa. First premium awarded.

On the embellishment of a country home, by Thos. McWhorter, of Mercer county. First premium awarded.

On the construction of dairy houses, by C. G. Taylor.

The treasurer made his report of receipts and expenditures for the last two years.

Messrs. Gage and Ellsworth were appointed a committee to examine his accounts and vouchers.

On motion,

Resolved, That the recording secretary cause to be presented to each member of the legislature one copy of the printed proceedings of the Illinois State Agricultural Society.

Adjourned till 9 o'clock to-morrow.

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SPRINGFIELD, JANUARY 7, 1857.

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TRIAL OF REAPERS AND MOWERS.

It having been determined by the executive committee, at the April meeting, 1856, to hold a reaper and mower trial, under the direction of ex-President Jas. N. Brown, the following "scales of points," with remarks thereon, for the government of the judging committees, were published in the Prairie Farmer, by W. F. M. Arny, who acted for Mr. Brown in making all the prelimary arrangements. And though the trial did not take place, as advertised, the propriety—if not necessity—of some fixed principles on which to base awards in regard to the comparative excellence of these machines is so obvious that we should hardly be excused for its rejection, even though the scale of points may not be considered perfectly reliable, or the adoption of the whole, by the society, unquestionable.

The paper is put on record as a start in the right direction, and with the hope that scientific mechanics and observing farmers, who use the machines, may take the subject into serious consideration, and aid the state society in perfecting this scale of points, or some other, based on principles of operative economy, in every essential particular. That machines do differ, in many essential points, is well known; and we want some better principle for determining the extent and value of that difference than is afforded by mere arbitrary opinion.

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REAPER SCALE—A MACHINE PERFECT AT 300.

Number.....	1	2	3	4	5	6	7	8	9	10	11		
	Cost of machine.	Simplicity of construction to do its work.	Facility of management, including time and room required for turning.	Durability and reliability.	Adaptation to varied surfaces and to cutting at different heights.	Freedom of the knife from clogging fibrous or gummy matter.	Motive power, or power required for a given amount of work.	Manual labor in raking.	Rapidity, or amount of harvesting in a given time.	The manner of leaving the grain for binding.	Saving of grain in cutting, binding and handling.	Aggregate.	REMARKS.
Value of each point..	9	8	10	30	16	30	9	45	26	45	72	300	
Names of competitors													
.....	...	...	...	...	...	...	...	...	...	...	...	...	...
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MOWING SCALE—A MACHINE PERFECT AT 212.

Number.....	1	2	3	4	5	6	7	8	9	10		
	ıt of machine.	plicity of construction to do its work.	ility of management, including time nd room required for turning.	rability and reliability.	aptation to varied and uneven surfaces.	aptation to cutting close to the ground.	edom of the knife from clogging by ibrous or gummy matter.	tive power, or power required for a iven amount of work.	pidity, or amount of cutting in a given ime.	manner of leaving grain for binding.	gregate.	MARKS.

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COMBINED MACHINES.

	Aggregate on the reaper scale.	Aggregate on the mower scale.	Ease of convertibility.	Aggregate.	REMARKS.
	300	212	38	550	
.....	.....	.....	.....	.....	.....
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The scale of points adopted is that recommended by Col. B. P. Johnson, secretary New York agricultural society, and A. L. Elwyn, secretary Pennsylvania agricultural society.

REMARKS UPON THE SCALE.

A scale of points is necessary in trials of reapers and mowers, for three reasons: 1st, that a correct decision may be obtained; 2d, that the grounds of awards may be understood by those who wish to buy machines; and 3d, that the awards of different committees may be understandingly compared.

It is idle for any committee, no matter how capable of judging clearly and correctly, to jump at a decision in the aggregate between the claims of rival reapers—so many of which are established as good machines—some of them, perhaps, nearly equal, in all important respects, and no one of which is best on every point. A comparison must be instituted between them, and a careful decision had upon each specific point. Having a *scale* of these various points, with their relative value fairly apportioned, even an inferior committee could hardly fail to arrive at a pretty correct award.

Such has been the character of most of the trials that the deci-

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impossible for a farmer not at the trials to get any aid from them in selecting a reaper. Indeed, the variety of verdicts given in this blind manner tends to confuse him; whereas, had the decision been given upon each specific point, he could, by comparison of the reports, decide which reaper was best suited to his circumstances.

One scale was prepared of 100, but to give the points lowest in importance a sufficiently high number to mark the relative differences in machines, the sum total must run far beyond that amount.

It is important for farmers to have such machines used in trials as are ordinarily built and sold to them. They do not want to be misled by a machine of extra cost and finish taking the highest prize. They want to see the machines tried that *they have got to buy*. Therefore, let all societies introduce a rule to this effect, and if any manufacturer is found trying to work underhandedly or unfairly on this or other points, he should be excluded from the trial and the award, at the judgment of the committee.

The above scales are not offered to the public as being perfect, but as being an improvement upon any plan as yet proposed. It has received the careful consideration of farmers well acquainted with machines and with public trials, and has been altered so that it meets the united approval of leading persons in the agricultural societies of five different states.

[NOTE.—Judgment being formed by the committee relative to each machine on each specific point, according to the following scales, the machine whose aggregate reaches the highest number is the victor—300 being the sum total of a perfect reaper, 212 of a perfect mower, and 550 of a perfect combined machine.]

SCALE OF POINTS IN TRIALS OF REAPERS.

No.	Perfect at 300.	
1	9	Cost of machine.
2	8	Simplicity of construction to do its work.
3	10	Facility of management, including time and room required for turning.
4	30	Durability and reliability.
5	16	Adaption to varied and uneven surfaces, and to cutting at different heights.
6	30	Freedom of the knife from clogging by fibrous or gummy matter.
7	9	Motive power, or power required for a given amount of work.

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To determine the relative value of points correctly, they should, as far as practicable, be estimated by dollars and cents; though several cannot be arrived at in that manner. As a matter of convenience, those are put into the scale that can be estimated by money, at a unit for each dollar.

First point, "*Cost.*"—This I get at by supposing a machine good for five years' wear, which the higher priced ones certainly are. The difference in price between the cheapest and highest priced is $35. This amount divided among the five years, gives $7, and the interest on $35 is $2 10, making $9 10. This, therefore, is put at 9 in the scale, being a unit for each dollar.

The second point should read, "*simplicity of construction to do its work.*—The more a machine does the more machinery may there be to do it. A self raker, and even a binder, *may* be just as simple in its structure as some *hand raker*, considering what it does; and to make judgment fair and equitable between them, the object and work must be fairly considered as well as construction.

This point is not of great importance; those following should control. For if a machine is *easily managed, durable*, &c., it is little matter about a piece or two more of gearing or frame.

The third point, "*facility of management, including time and room required for turning*," is so similar to the ninth point—rapidity of operation—that one of these must be set low, or too much weight will be given them.

The fourth point, "*durability and reliability*," is of much more importance. Any machine, however good in other respects, is an immense evil to the farmer, if it fails in time of need. Having relied upon it to save his grain, and it proving worthless, and having made no other provisions, he is obliged to hire harvesters, at largely increased cost, if, indeed, he can get them at all, or, perhaps, submit to the loss of a valuable crop, wholly or in part. Opinions would vary, greatly, as to the number this should be set at.

The fifth point, "*adaption to varied and uneven surfaces, and to cutting at different heights*," should be set much lower than the previous one.

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or wet grain. This is particularly the case where there is much undergrowth. It is important to be able to cut when the dew is on, because it is cooler, and the grain shatters less. But if the knife constantly *clogs*, little progress can be made.

[Thus far it has been impossible to find data by which to estimate the relative value of the points, and opinions will, perhaps, vary very much concerning them. But in the others we can get sound data to base them upon, and though, in carrying out the estimates, some come to high figures, they are not, therefore, to be rejected, or considered wild.]

The seventh point, "motive power, or power required for a given amount of work."—The difference in team required to work any two reapers is never more than one pair of horses, the value of which, for a harvest, will vary considerably in different sections. Large farmers, who have plenty of horses, would only consider the cost of an extra pair as the worth of the extra grain they had to feed during the reaping. Probably, putting this at the same as the first point, "cost," will be fair, and certainly high enough, particularly as the inconvenience of using an extra pair has its weight in the estimate of third point.

The eighth point, "manual labor in raking."—To establish the value of this point, it is first to be considered that there is considerable difference between *hand-raking* reapers in the ease with which grain can be raked from them. It would not be too much to allow 10 to estimate the difference between them.

Then a self-raker saves a hand—and that, too, at the very hardest of work—over the *best* hand raker. As wages were last year, and will be the present, this hand in harvest, with his board, costs at least $2 a day. If a little less than that in some sections, it will be enough more in others to make it equal this and more too. The wheat harvest will last from eight to twelve days, say ten, and oats, rye, barley, &c., say five days. The latter is, perhaps, a day or two longer than southern farmers would generally have grain for, but it is too little, by five days, for the north, so that fifteen days' work would be a moderate allowance, making the saving $30. Something more should be added to this, because of the excessive labor that is saved—one hand being hardly sufficient to work all day long, and day after day, in raking off. For this five

$140, and are worn out in five years; that is $28 a year; the interest is $8 40; the team, two pair, $18; the raker $30 and driver $20. The latter not having as hard, and a cheaper hand answering, his labor is estimated a little less than the raker. The total is $104 40. The narrowest reaper cuts 4½ feet, and the widest 6 feet, (with a very few exceptions not necessary to be allowed for,) making a difference of one quarter. Then one quarter of the above figures would give the value of this point at 26.

The tenth point, "manner of leaving the grain for binding," More difference than one hand can be made in binding by the gavels being well or badly laid. Between the best and worst machine to rake from, there is in the manner of depositing the grain at least a difference of a hand and half, costing, for the fifteen days, $45, making this point, therefore, 45.

The eleventh point, "saving of grain in cutting, binding and handling, and in the stack."—Those who have compared the working of different reapers, know that some will save largely as compared with others, and it is very easy to make a difference of several bushels in each day's work of ten to fifteen acres, even to the amount of a bushel or more an acre, particularly if the grain is over ripe.

There is, first, the loss in not cutting clean; second, shattering by the reel and in cutting; third, shattering in raking off; fourth, loss from scattered grain being badly raked off; fifth, loss in handling the sheaves—the grain not having been raked straight, and, consequently, being imperfectly secured in the sheaf; and sixth, liability to injury in the stack by the weather if the heads are not all laid one way in the raking.

These losses, though depending much upon the hands, will all be found to exist, and greatly to vary between different machines with good hands. Some of them are trifling, yet, in the aggregate, they make a point of much more value than any other.

Suppose the difference of loss, in extreme cases, is only half a bushel to the acre—that 120 acres of wheat and 60 acres of other grains are cut, which would be twelve acres per day for the season of fifteen days. Thus there is saved 60 bushels of wheat, worth

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If this scale is at all correct, there is, of course, great difference in machines. If the forty or fifty varieties invented, and of which some thirty are, more or less, in use, could all be brought together, some would run very low in the scale, while others would go high. Of the points in the scale 206 (less 10 in the eighth point of raking) —196, are estimated in money, represent $196. In the points, (2 to 6 inclusive,) there is a difference in money value of say only $14 a season, making $201. Some of the reapers would not, in thorough trials, reach 60 on these points, while others would reach 160 and over, thus showing there may be a difference in reapers of over $100 *in a single season's use.*

With so large a difference in reapers, and the demand so rapidly increasing, and it being difficult—almost impossible—for farmers to compare them themselves, it is not strange that so many attempts should be made to test them by farmers united in their state and county societies. Yet how few of the numerous trials have as yet resulted in any permanent good! Wherefore this abortive result in efforts which have cost so much in time, labor and money to societies, committees, reaper builders and the public generally? Is not the failure chiefly owing to the want of a systematic plan to insure thoroughness and guard against mistakes? If so, a good scale of this kind will correct the evils, and it is useless to go into trials without something of the sort.

SCALE OF POINTS IN TRIALS OF MOWERS.

No.	Perfect at	
1	9	Cost of machine.
2	8	Simplicity of construction to do its work.
3	10	Facility of management, including time and room required for turning.
4	30	Durability and reliability.
5	10	Adaptation to varied and uneven surfaces.
6	16	Adaptation to cutting close to the ground.
7	70	Freedom of the knife from clogging by fibrous and gummy matter.
8	9	Motive power, or power required for a given amount of work.
9	20	Rapidity, or amount of cutting in a given time.
10	30	The manner of leaving the grass for curing.
	212	

REMARKS UPON THE MOWING SCALE.

After the full remarks upon the reaping scale, it is unnecessary to add much here. The plan is easily understood. The four first

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ting machines that will cut without choking. The eighth is not altered, though it might, perhaps, be reduced. The ninth is reduced six, because of reduction in expenses of working the mower as compared with the reaper. The tenth is also reduced, for though an important point, there is not the difference in mowers in the manner of leaving the grass, to make a higher amount necessary to fairly compare them. Nearly all leave the grass spread perfectly.

SCALE FOR COMBINED REAPERS AND MOWERS.

300	The reaper scale.
212	The mower scale.
38	Ease of convertibility.
550	

Were all machines alike easily converted from reaper into mower, and *vice versa*, the best combined machine would be that which reaches the highest aggregate in the two scales; but in consequence of varying in this respect, this other point must be added, making the points in a perfect combined machine reach 550."

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LIST OF AWARDS

AT THE FOURTH ANNUAL EXHIBITION OF THE ILLINOIS STATE AGRICULTURAL SOCIETY, HELD AT ALTON, SEPTEMBER 30TH, AND OCTOBER 1ST, 2D AND 3D, 1856.

FARMS, HEDGES AND NURSERIES.

Best improved and most highly cultivated farm, not less than forty acres—John H. Armstrong, Orleans post office, Illinois, first premium—diploma.

Best arranged and most economically conducted grazing farm, Jas. N. Brown, Berlin, Illinois, first premium—diploma.

Best and most highly cultivated nursery, which contains the best variety of fruit trees, shrubs and plants, Lewis Ellsworth & Co., Naperville, Illinois, first premium—diploma. Second best and most highly cultivated nursery, which contains the best variety of fruit trees, shrubs and plants, John A. & Charles Kennicott, the Grove Nursery and Gardens, West Northfield, Cook county, Illinois, second premium—medal.

Best and largest amount of well set and cultivated hedge, on one farm, not less than two summers' growth, in the hedge row, Lewis H. Thomas, Virden, Macoupin county, Illinois, first premium—diploma and the society's special gold medal.

Best hedge of 1,000 rods and upwards, Lewis H. Thomas, Virden, Macoupin county, Illinois, first premium—diploma and silver medal.

Best hedge of 40 rods, John H. Armstrong, Orleans post office, Illinois, first premium—$10.

CLASS A.—CATTLE.

NO. 1—THOROUGH-BREDS, OF ALL BREEDS.

BULLS.—Best bull, four years old and over, first premium, $40, "Farmer Boy," Joseph Rayburn, Bloomington, Illinois. Second premium, $20, "Baltimore," Geo. M. Chambers, Jacksonville, Illinois. Third premium, $10, "Prince Albert," Benj. Burt, Urbana, Illinois.

Best bull, three years old, first premium, $40, "Lexington," Elon Eldred, Carrollton, Greene county, Illinois. Second premium, $20, "Mont Blanc," Ritters & Pollock,

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NOTE.—Committee recommended a premium of $10 to bull "Cato," he being considered nearly equal to "Buckeye." They also recommend a premium of like amount, and for the same reason, to "Sir Henry," exhibited by Wm. Black, Carrollton, Greene county, Illinois, and to "Edgar," exhibited by William Culverson, Paris, Edgar county, Illinois. These premiums have not yet been acted upon by executive board.

Best bull, one year old, first premium, $40, "Bolingbroke," H. M. Cross, Jerseyville, Illinois. Second premium, $20, "Perfection," Elon Eldred, Carrollton, Greene county, Illinois. Third premium, $10, "Fairday," J. N. Brown, Berlin, Illinois.

Best bull calf, first premium, $40, "Fillmore," William Herriot, Mahomet, Champaign county, Illinois. Second premium, $20, "D'Ortley," Benjamin Sanders, Rhodes' Point, Macoupin county. Third premium, $10, "Fremont," A. G. Carle, Urbana, Illinois.

COWS.—Best cow, over four years old, first premium, $30, "Tulip," J. N. Brown, Berlin, Illinois. Second premium, $15, "Bracelet," James M. Hill, Jersey Prairie, Cass county, Illinois. Third premium, $10, "Sally Campbell," J. N. Brown. "Helen" J. D. Smith, Berlin, commended.

Best cow, three years old, first premium, $30, "Stella," J. N. Brown. Second premium, $15, "Beauty," H. Jacoby, Springfield, Illinois.

HEIFERS.—Best heifer, two years old, first premium, $30, "Snowdrop," Elliott Stephenson, Jacksonville, Illinois. Second premium, $15, "Fleda," J. D. Smith, Berlin, Sangamon county, Illinois. Third premium, $10, "Mary," Benjamin Burt, Urbana Illinois.

Best heifer, one year old, first premium, $30, "Lily Dale," A. G. Carle, Urbana, Illinois. Second premium, $15, "Young Splendor," H. Jacoby, Springfield. Third premium, $10, "Ruby," J. D. Smith, Berlin, Illinois. "Lallah Rookh," A. G. Carle, commended. "Eglantine," J. N. Brown, commended.

Best heifer calf, first premium, $30, "Helen Eyer, 2d," J. D. Smith, Berlin, Illinois. Second premium, $15, "Red Bud," H. Jacoby, Springfield, Illinois. Third premium, $10, "Lida," Benjamin Burt, Urbana, Illinois.

NO. 2—NATIVES AND CROSSES.

Best cow, four years old and over, "Jenny Lind," A. G. Carle, Urbana, Illinois, first premium, $12. Second best cow, four years old and over, "Miss Dolin," H. S Spaulding, Alton, Illinois; second premium, $8. Third best cow, four years old and over, "Major," W. W. Davis, Bethalto, Madison county, Illinois, third premium, $5.

Best cow, three years old, "Ella," J. D. Smith, Berlin, Sangamon county, Illinois, first premium. $12. Second best cow, three years old, "Elvira," A. G. Carle, Urbana, Illinois, second premium, $8.

Best heifer, two years old, "Jenny Lind," J. G. Strawn, Orleans, Morgan county, Illinois, first premium, $12. Second best heifer, two years old, "Little Martha," A. G. Carle, Urbana, Illinois, second premium, $8. Third best heifer, two years old "Blossom," Wm. Herriot, third premium, $5.

Best heifer. one year and under two years old, "Miranda," A. G. Carle, Urbana, Illinois, first premium, $12.

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Best ten calves, A. G. Carle, Urbana, Illinois, first premium—diploma and $25.*

NO. 5—WORK OXEN AND STEERS, EXHIBITED IN THE YOKE.

Best yoke of oxen, four years old, first premium, $15, "Tom and Jerry," Urial Mills, Salem, Marion county, Illinois.

Best yoke steers, two years old, trained by boy under 16 years, first premium—medal to "Dick and Darby," Marshall Green, Jacksonville, Morgan county, Illinois.

To boys, not over 16 years of age, training yoke of steers one year old and under two years, first premium, medal, to Fred. Maybee, Upper Alton, Illinois.

NO 6—SWEEPSTAKES.

Best bull and five cows or heifers, from one year old and upwards, James N. Brown, Berlin, Illinois, first premium—diploma and $50. Second best bull and five cows or heifers, from one year old and upwards, H. Jacoby, Springfield, Illinois, second premium—medal and $25.

Best ten calves, male and female, one year old, and from any one county, J. N. Brown, first premium—diploma and $50. Second best ten calves, male and female, one year old, and from any one county, A. G. Carle—medal and $25.

CLASS B.—HORSES.

NO. 7—THOROUGH-BREDS.

Best stallion, four years old, first premium, $15, "Action," A. M. C. Hawes, Georgetown, Vermilion county, Illinois. Second best stallion, four years old, $10, "Africa," John Henry, Jacksonville, Illinois.

Best stallion colt, two years old, first premium, $15, "Consternation," Elon Eldred, Carrollton, Illinois Second best stallion colt, two years old, $10, "Sea Gull," A. M. C. Hawes, Georgetown.

Best brood mare, over four years old, first premium, $15, "Rosebud," James G. Strawn, Orleans, Morgan county, Illinois. Second best brood mare, over four years old, $10, "Elfin," Jerry Turpin, Carrollton, Greene county, Illinois.

Best filly, over two years old, first premium, $15, "Prairie Flower," A. M. C. Hawes.

NO. 8—HORSES OF ALL WORK—ROADSTERS.

Best stallion, four years old, first premium, $20, "Bell Founder," J. S. Stockdale, Springfield, Illinois. Second best stallion, four years old, $10, "St. Lawrence," Edgar Griswold, Whitehall, Greene county, Illinois.

Best stallion, three years old, first premium, $20, "Tom Wonder," Thomas Smith, Springfield, Illinois. Second best stallion, three years old, $10, "Granite State," J. Y. Sawyer, Godfrey, Madison county, Illinois.

Best stallion colt, two years old, first premium, $20, "Harry Hill," C. A. Walker, Carlinville, Illinois. Second premium, $10, "Jim Bell," W. H Renfro, Springfield, Illinois. "Frank," Seth Evans, Maysville, Clay county, Illinois, commended.

Best stallion colt, one year old, first premium, $20, "Tomtit," Robert Green, Venice,

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Best brood mare, over four years old, first premium, $15, "Nancy Dawson," A. P. Cushman, Waynesville, De Witt county, Illinois. Second premium, $10, "Morgianna," Jerry Turpin, Carrollton, Illinois.

Best filly, three years old, first premium, $15, "Manando," Samuel Smalley, Woodburn, Macoupin county, Illinois. Second premium, $10, "Dolly," Milton Williams, Greenfield, Greene county, Illinois.

Best filly, two years old, first premium, $15, "Fashion," A. M. Peddicord, Berlin, Illinois. Second premium, $10, "Lizzie," Wiley Prewitt, Bethalto, Madison county, Illinois.

Best mare colt, one year old, first premium, $15, "Jenny Lind," D. W. Corgine, Fidelity, Jersey county, Illinois. Second premium, $10, "Nameless filly," D. Gruber, Staunton, Macoupin county, Illinois.

Best sucking colt, first premium, $10, "Blaze," Nelson Montgomery, Edwardsville, Madison county. Second premium, $5, "Little Giant," Stewart W. McCambridge, Bunkerhill, Macoupin county, Illinois.

NO. 9.—DRAUGHT HORSES.

Best stallion, four years old, first premium, $12, "Sampson," Abraham Stotts, Paris, Edgar county, Illinois. Second premium, $8, "North America," Alfred A. Clanton, Woodburn, Illinois.

Best stallion, three years old, first premium, $10, "Buckeye," John D. Slack, De Witt county, Illinois. Second premium, $8, "Sampson," Daniel Morfort, Carrollton, Illinois.

Best Stallion, one year old, first premium, $12, "Bucephalus," Edwin Henderson, Greenfield, Macoupin county, Illinois.

Best gelding, three years old, second premium, $3, "Sampson," John Haggard, Virden, Macoupin county, Illinois.

Best mare, four years old, first premium, $12, "Susy Jelton," Nelson Montgomery, Edwardsville, Illinois. Second premium, $8, "Julia," Joseph F. Taylor, Mahomet, Champaign county, Illinois.

Best filly, three years old, first premium, $12, "Cinthy Ann," F. S. Casey, Mt Vernon, Jefferson county, Illinois. Second premium, $8, "Seladore," A. H. Peddicord.

Best sucking colt, first premium, $10, "Young Louis Napoleon," A. P. Cushman, Waynesville, Illinois. Second premium, $6, "Hawkeye," James G. Strawn, Orleans, Morgan county, Illinois.

Best pair draught horses, first premium, $15, T. T. Armstrong, Fidelity, Jersey county, Illinois.

NO. 10.—MATCHED HORSES FOR CARRIAGES.

First premium, $15, "Queen and Sarah," W. H. Renfro, Springfield, Illinois. Second premium, $10, pair of bays, Andrew McFarlane, Jacksonville, Illinois.

NO. 11.—LIGHT HARNESS—SINGLE.

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NO. 12.—JACKS, JENNETS AND MULES.

Best jack, four years old, first premium, $15, "Kentuck," Nelson Montgomery, Edwardsville, Illinois. Second premium—medal, "Fremont," Wm. Jackson, Salem, Marion county, Illinois.

Best jack, three years old, first premium, $15, "Compromise, jr.," Ritters & Pollock, Jacksonville, Illinois.

Best pair of mules for farm, first premium, $15, "Sal and Jin," Urial Mills, Salem, Illinois.

Best pair of matched mules, for carriage, three years old and over, first premium, $15, one pair, D. T. Bonnell, Jerseyville, Illinois.

Best single mule, three years old, first premium, $15, "Deer," Wade Johnson, Greenfield, Greene county, Illinois.

Best single mule, two years old, first premium, $10, "Betty Black," J. M. Hill, Jersey Prairie, Cass county, Illinois. Second premium—medal, "Tuckyhoe," D. T. Bonnell.

Best single mule, one year old, first premium $10, "Jenny Lind," J. H Spears, Petersburg, Menard county, Illinois. Second premium—medal, "Fanny," Benjamin Trabue, Carlinville, Illinois.

Best mule colt, first premium, $10, "Black," Stephen Green, Jacksonville, Illinois. Second premium—medal, "Jenny," J. F. Taylor, Mahomet, Illinois.

NO. 13—SWEEPSTAKES.

Best ten colts (horse, ass or mule,) from any one county, first premium—Diploma and $30. One lot mule colts, Nelson Montgomery, Edwardsville, Madison county, Illinois.

Best stallion and five brood mares, belonging to any one person, or from any one county, first premium—Diploma and $30, one lot, J. Y. Sawyer, Madison county. Second best stallion and five brood mares, belonging to any one person, or from any one county—medal and $20, one lot, Joseph Stockdale, Springfield, Sangamon county.

CLASS C.—SHEEP.

NO. 14, LONGWOOLS, BAKEWELLS, &c.

Best buck, two years old, Benjamin Saunders, Rhodes' Point, Macoupin county, Illinois, first premium, $10. Second best buck, two years old, Charles Price, Berlin, Sangamon county, Illinois, second premium—medal.

Best buck, under two years old, Charles Price, Berlin, Sangamon county, Illinois, first premium, $10.

Best pen of five ewes, over two years old, Charles Price, Berlin, Sangamon county, Illinois, first premium, $10.

NO. 15.—MIDDLE WOOL, SOUTHDOWN, &c.

Best Southdown buck, over two years old, James Carnard & J. Turpin, Carrollton, Greene county, Illinois, first premium, $10.

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NO. 16—FRENCH MERINOS.

Best buck, over two years old, "King of the West," Stipp & Latourrette, Canton, Fulton county, Illinois, first premium—diploma and $10. Second best buck, over two years old, "Progress," A. B. McConnell, Springfield, Sangamon county, Illinois, second premium—medal.

Best buck, under two years old, "John Sultan," J. McConnell, Springfield, Illinois, first premium—diploma and $10. Second best buck, under two years old, "Kansas," Stipp & Latourrette, Canton, Fulton county, Illinois, second premium—medal.

Best pen of five ewes, over two years old, Stipp & Latourrettee, Canton, Fulton county, Illinois, first premium—diploma and $10. Second best pen of five ewes, over two years old, Stipp & Latourrette, second premium—medal.

Best pen of five ewes, under two years old, John McConnell, Springfield, Illinois, first preminm—diploma and $10. Second best pen of five ewes, under two years old, A. B. McConnell, Springfield, Illinois, second premium—medal.

Best pen of five ewe lambs, Stipp & Latourrette, Canton, Fulton county, Illinois, first premium—diploma and $10.

NO. 17—SPANISH MERINOS.

Best buck, over two years old, "Blackhawk," E. E. Gorham, Hadley, Will county, Illinois, first premium—diploma and $10. Second best buck, over two years old, C. W. Price, Berlin, Sangamon county, Illinois, second premium—medal.

Best buck, under two years old, "Favorite," E. E. Gorham, Hadley, Will county, Illinois, first premium—diploma and $10. Second best buck, under two years old, "Vermont," A. B. McConnell, Springfield, Illinois, second premium—medal.

Best pen of five ewes, over two years old, Charles Price, Berlin, Illinois, first premium—diploma and $10. Second best pen of five ewes, over two years old, L. Hamlin, Alton, Illinois, second premium—medal.

Best buck and ten ewes, Stipp & Latourrette, Canton, Fulton county, Illinois, first premium—diploma and $25. Second best buck and ten ewes, A. B. McConnell, Springfield, Illinois, second premium—medal and $15.

CLASS D.—SWINE.

NO. 22.

Best boar for use in this state, "Abner," W. F. M. Arny, Bloomington, McLean county, Illinois, first premium—diploma and $10.

Best boar, one year old, "Milton," W. F. M. Arny, first premium—$10. Second best boar, one year old, "Fremont," J. Y. Sawyer, Godfrey, Madison county, Illinois, second premium—$5.

Best boar, six months old, "Grazier," Elon Eldred, Carrollton, Greene county, Illinois, first premium—$10. Second best boar, six months old, "Curly," Elon Eldred, second premium—$5.

Best breeding sow, two years old, one lot, George Barry, Alton, Illinois, first premium—diploma and $10. Second best breeding sow, two years old, "Princess," W. F. M. Arny, second premium—medal and $10.

NO. 2—SWEEPSTAKES.

Best lot of hogs, shoats or pigs, not less than one boar and ten sows, owned by one person, Samuel Armstrong, Jerseyville, Jersey county Illinois, first premium—$20 and diploma. Second best lot of hogs, shoats and pigs, not less than one boar and ten sows, owned by one person, W. F. M. Arny, Bloomington, Illinois, second premium—medal and $10.

Best lot of boar pigs, under six months old, not less than ten, owned by one person, &c., Samuel Armstrong, Jerseyville, Jersey county, Illinois, first premium—diploma and $20. Second best lot of boar pigs, under six months old, not less than ten, owned by one person, &c., W. F. M. Arny, second premium—diploma and $10.

CLASS E.—POULTRY.

NO. 24.

Second best Poland hens, G. D. Wilson, Ridgely, Madison county, second premium—medal.

Best pair Cochin Chinas, B. S. Robinson, Springfield, Illinois, first premium—$3. Second best pair of Cochin Chinas, Charles W. Dimmock, Alton, Illinois, second premium—medal.

Best lot turkeys, not less than two, third premium to J. Junett, Alton, Illinois—agricultural periodical, $1.

Best pair Poland ducks, second premium to W. B. Hundley, Illinois—medal. Third premium—agricultural periodical, worth $1—to W. W. Webb, Alton, Illinois.

Best lot of small ducks, second premium—medal—awarded to Miss J. Head, Alton, Illinois.

Best lot of Guinea hens, second premium—medal—awarded to James Junett, Alton, Illinois.

Best pair China Geese, J. T. De Baum, Godfrey, Madison county, Illinois, first premium—$3.

Best pair native geese, first premium—$3—to Miss Emeline Head, Alton, Illinois.

Best show of various breeds, first premium—diploma and $5—C. W. Dimmock, Alton, Illinois.

CLASS F.—FARM IMPLEMENTS.

NO. 25—PLOWS.

Best plow, with newly invented principles and arrangements, Jesse Frye, Springfield, Illinois, first premium—diploma.

Best plow for old ground, prairie, L. Andrews, Grand de Tour, Ogle county, Illinois, first premium—diploma. Second premium—medal—D. C. McClellan, Urbana.

Best plow for clay soil, first premium—diploma—John Deere, Moline, Rock Island county, Illinois. Second premium—medal—S. O. Vaughan & Peck, Naperville, Du Page county, Illinois.

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Best corn plow—commended—A. Guitor, Peru, La Salle county, Illinois.

Best subsoil plow, first premium—diploma—John Deere, Moline, Illinois. Second premium—medal—W. M. Plant & Co., St. Louis, Missouri.

NO. 26.—ROLLERS, HARROWS, &c.

Best horse rake, first premium—diploma—John W. Lytte, Griggsville, Pike county, Illinois. Second premium—medal—L. A. C. Brown, Sparta, Randolph county, Illinois.

Best corn cultivator, first premium—diploma—Rockwell & Hine, Jacksonville, Illinois. Second premium—medal—S. O. Vaughan, Naperville, Illinois. John Deere, Moline, Rock Island county, Illinois—commended.

NO. 27.—SHOVELS, FORKS, &c.

Best and most numerous variety of agricultural implements, first premium—diploma and ten dollars—W. M. Plant & Co., St. Louis, Missouri.

The best six hay forks, first premium—medal—Topping & Brothers, Alton, Illinois.

The best six manure forks, first premium—medal—Topping & Brothers, Alton, Illinois.

The best shovels, first premium—medal—Topping & Brothers, Alton, Illinois.

The best hoes, first premium—medal—Topping & Brothers, Alton, Illinois.

The best ox yoke, first premium—medal—Plant & Co., St Louis, Missouri.

Best bush scythe, first premium—medal—D. J. Millard, Clayville, New York.

NO. 28.—DRILLS, CORN PLANTERS, &c.

Best gauged grain drill, first premium—diploma and ten dollars—N. W. Jones & Co., Griggsville, Pike county, Illinois. Second premium—medal—J. N. Ward, Bloomington, McLean county, Illinois.

Best corn planter, for horse power, first premium—diploma and $10—G. W. Brown, Galesburg, Knox county, Illinois. Second premium—medal and $5—William M. Plant & Co, St. Louis, Missouri.

Best corn and seed planter, horse power first premium—diploma and $10—C. S. Chison, Dayton, Montgomery county, Ohio. Third premium—medal and $5—William M. Plant & Co., St. Louis, Missouri.

Best broadcast sowing machine, first premium—diploma and $10—Scott, Dent & Co., Magnolia, Putnam county, Illinois. Second premium—medal and $5—Chamberlain & Smith, New Haven, Connecticut.

Best timothy and clover seed planter, first premium—diploma and $10—William S. Sampson, Chicago, Illinois.

Best sod corn planter, horse power, first premium—diploma and $10—C. S. Chison, Dayton, Ohio.

Best hand corn planter, first premium—diploma and $10—A. Alcott, Alton, Illinois. Second premium—medal and $5—J. Herva Jones, Rockton, Illinois.

NO. 29.—HARVESTERS AND MOWERS.

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See class N, No. 58, miscellaneous department.

Best horse power, for general purposes, first premium—diploma and $10—N. Hanson & Co, Illinois.

Best corn and cob mill, first premium—diploma—J. B. Chadwick, St. Louis, Missouri. Commended—William M. Plant & Co., St. Louis, Missouri.

Best portable saw mill, first premium—diploma and $10—H. D. Emery & Co., Chicago, Illinois.

Best fanning mill, first premium—diploma—Roach & Co., Clintonville, Kane county, Illinois. Second premium—medal—H. M. Goodrich, Aurora, Kane county, Illinois.

The best clover seed hulling machine, first premium—diploma—John R. Moffit, Piqua, Miami county, Ohio.

The best portable hay press, second premium—medal and $5—Wm. M. Plant & Co., St. Louis, Missouri.

The best hay pitching machine, first premium—diploma and $5—Samuel Armstrong, Jerseyville, Illinois.

The best corn sheller, horse power, first premium—diploma and $10—John Van Horn, Magnolia, Putnam county, Illinois.

The best corn sheller, hand power, first premium—diploma and $5—T. W. McFarland. (No post office mentioned.) Second premium—medal—Wm. M. Plant & Co., St. Louis, Missouri.

The best straw and hay cutter, first premium—diploma—Robert S. Hall, Abington, Kane county, Illinois. Second premium—medal—Wm. M. Plant, St. Louis, Missouri.

NO. 31.—MISCELLANEOUS HOUSEHOLD IMPLEMENTS.

Best churn, first premium—medal—O. C. Walker, Wyoming, Stark county, Illinois. Second premium—agricultural periodical—F. Thorpe, Shelbyville, Illinois.

Best cheese press, first premium—medal—Wm. M. Plant & Co., St. Louis, Missouri.

Best clothes washing machine, first premium—medal—J. E. Ambrose, Lena, Stephenson county, Illinois.

Best spinning wheel, for flax, second premium—agricultural periodical—Wm. M. Plant & Co., St. Louis, Missouri.

Best spinning wheel, for wool, second premium—agricultural periodical—Wm. M. Plant & Co., St. Louis, Missouri.

CLASS G.—FARM PRODUCTS.

NO. 32.—GRAIN AND VEGETABLES.

Best sample winter wheat, first premium—$5—H. Dishon, Jonesboro', Illinois. Second premium—agricultural periodical—Russell Hinckley, Belleville, St. Clair county, Illinois.

Best sample spring wheat, first premium—medal—O. B. Ostrander, Pontiac, Livingston county, Illinois. Second premium—agricultural periodical—C. W. Muntfeldt, Oregon, Ogle county, Illinois.

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Best sample of Indian corn, one bushel, in ears, first premium—medal and $5—Silas Hulbert, Alton, Illinois. Second premium—agricultural periodical—John M. Bell, Edwardsville, Illinois.

Best buckwheat, first premium—$5—Thomas Bradbury, Griggsville, Illinois.

Best timothy seed, first premium—$5—C. B. Ostrander, Pontiac, Illinois.

Best blue grass seed, first premium—$5—Wm. W. Webb, Upper Alton, Illinois.

Best table potatoes, first premium—$5—C. G. Taylor, Pleasant Ridge, Rock Island county, Illinois. Second premium—medal—B. Rose, Upper Alton, Illinois.

Best sweet potatoes, first premium—$5—Caleb Noble, Otter creek, Jersey county, Illinois. Second premium—medal—Thomas Bradbury, Griggsville, Illinois.

Best table turnips, first premium—medal—Geo. Booth, Alton, Illinois. Second premium—agricultural periodical—James McMahan, Alton, Illinois.

Best table beets, first premium—medal—James McMahan, Alton, Illinois. Second premium—agricultural periodical—W. C. Hoppy, Alton, Illinois.

Best parsnips, first premium—medal—James McMahan, Alton, Illinois.

Best cabbage, first premium—medal—F. Wooldridge, Venice, Madison county, Illinois. Second premium—agricultural periodical—Benjamin L. Dorsey, Upper Alton, Illinois.

Best tomatoes, first premium—medal—John Atwood, Alton, Illinois. Second premium—agricultural periodical—George Booth, Alton, Illinois.

Best egg plants, first premium—medal—John R. Woods, Alton, Illinois.

Best peppers, first premium—medal—W. O. Maxey, Old Ripley, Bond county, Illinois. Second premium—agricultural periodical—John Atwood, Alton, Illinois.

Best Lima beans, first premium—$5—George Barry, Alton, Illinois. Second premium—medal—W. O. Maxey, Old Ripley, Illinois.

Best pole beans, first premium—$5—Matilda Montgomery, Edwardsville, Illinois. Second premium—medal—Silas Hulbert, Alton, Illinois.

Best and greatest variety of garden peas, first premium—medal—Thomas Bradbury, Griggsville, Illinois.

Best pumpkins, first premium—$5—Silas Hulbert, Alton, Illinois. Second premium—medal—Thomas Jones, Bethalto, Madison county, Illinois.

Best squashes, first premium—$5—S. S. Miller, Paddock's Grove, Madison county. Second premium—medal—A. G Carle, Urbana, Illinois. James Junett, Alton, one lot Italian squashes—commended.

Best watermelons, first premium—$5—S. B. Gillham, Upper Alton, Illinois. Second premium—medal—A. J. Edwards, Hillsboro, Illinois. Best other melons, first premium—$5—George Booth, Alton, Illinois.

Best carrots, first premium—$5—James McMahan, Alton, Illinois.

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NO. 34—HAM, BUTTER AND CHEESE.

Best boiled hams, first premium—medal and $5—W. F. M. Arny, Bloomington, McLean county, Illinois. Second premium—$5—B. F. Long, Alton, Illinois.

Best butter, in tub or firkin, first premium—diploma and $20—C. W. Murtfeldt, Oregon, Ogle county, Illinois. Second premium—medal and $10—C. G. Taylor, Pleasant Ridge, Rock Island county, Illinois.

Best butter, made in May or June, first premium—$10—S. L. Miller, Paddock's Grove, Madison county, Illinois. Second premium—$5—C. W. Murtfeldt, Oregon, Illinois.

Best fresh butter, in rolls, first premium—$5—Mrs. John Mason, Godfrey, Illinois. Second premium—medal—Wm. Squires, Godfrey, Illinois.

Best cheese, one year old and over, first premium—$10—Arthur F. Bell, Barry, Pike county, Illinois. Second premium—medal—Ann C. Allis, Waverly, Morgan county, Illinois.

Best cheese, one year old, first premium—$10—C. G. Taylor, Pleasant Ridge, Illinois. Second premium—medal—Isaac Hevans, Baristowe, Macoupin county, Illinois.

NO. 35—HONEY, CAN FRUITS, BREAD AND CEREAL FOOD.

Best honey, first premium—$5—J. T. De Baum, Godfrey, Madison county, Illinois. Second premium—medal—James F. Mathew, Upper Alton, Illinois.

Best preserved peaches, in cans, first premium—$5—Mrs. L. M. Taylor, Chatham, Sangamon county, Illinois. Second premium—medal—John Mabee, Upper Alton, Illinois.

Best preserved tomatoes, first premium—$5—Benjamin L. Dorsey, Upper Alton, Illinois. Second premium—medal—J. S. Steidley, Carlinville, Illinois.

Best preserved cherries, first premium—$5—Mrs. S. E. Robinson, Springfield, Illinois. Second premium—medal—James D. Burns, Alton, Illinois.

Best preserved gooseberries, first premium—$5—Mrs. Dr. Johns, Decatur, Illinois. Second premium—medal—Mrs. S. E. Robinson.

Best preserved quinces, first premium—$5—George Barry, Alton, Illinois. Second premium—medal—Mrs. E. D. Andrews, Troy, Madison county, Illinois.

Best apple butter, first premium—$5—Mrs. J. L. Scott, Paddock's Grove, Madison county, Illinois. Second premium—medal—John R. Woods, Alton, Illinois.

The best peach butter, first premium—$5—Mrs. L. M. Taylor, Chatham, Sangamon county, Illinois.

The best three loaves wheat bread, first premium—$5—Mrs. John Mason, Godfrey, Madison county, Illinois. Second premium—medal—Mrs. Susan Waples, Bunkerhill, Macoupin cauntу, Illinois.

The best three loaves rye bread, first premium—$5—Mrs. S. Francis, Springfield, Illinois.

The best sponge cake, first premium—$5—Mrs. C. M. Fisher, Alton, Illinois. Se-

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CLASS II.

NO. 36—FRUIT.

The best display of fruit and ornamental trees from nursery, first premium—diploma and $10—Wm. Stewart & Sons, Quincy, Adams county, Illinois. Second premium—medal and $5—John Sigerson & Brothers, St. Louis, Missouri.

The best and greatest variety of apples, named and labeled, first premium—diploma—Tyler McWhorter, Millersburg, Mercer county, Illinois. Second premium—medal—Wm. Stewart & Sons, Quincy, Illinois. Third premium—horticultural periodical—John R. Woods, Alton, Illinois. Willis Willard, Jonesboro, Illinois, one lot—commended.

The best twenty-five varieties of apples, for all purposes, first premium—diploma—William Stewart & Sons, Quincy, Illinois Second premium—medal—John S. Galbraith, Mt Vernon, Jefferson county, Illinois.

The best quinces, first premium—diploma—John Sigerson & Brothers. Second premium—medal—Thomas Jones, Bethalto, Madison county, Illinois. Third premium—horticultural periodical—Charles Howard, Alton, Illinois.

The best six bunches of grapes, first premium—diploma—John R. Woods, Alton, Illinois. Second premium—medal—A. G Wolford, Alton, Illinois.

The best and greatest variety of good native grapes, first premium—diploma—Augustus Sheppard, Hennepin, Putnam county, Illinois

The best twelve bottles of cider, first premium—diploma—Mrs. L. Scarritt, Monticello, Illinois.

The best three bottles wine from any other fruit, first premium—diploma—George Barry, Alton, Illinois. Second premium—medal—Gersham Flagg, Paddock's Grove, Illinois.

The best and most perfect system of naming and classifying fruit trees in nursery and orchard, first premium—diploma and $10—William Stewart & Sons, Quincy, Illinois.

NO. 37—FLOWERS.

The best and greatest variety of named flowers, first premium—diploma and $5—Orlando Ordway, Lawn Ridge, Marshall county, Illinois. Second premium—medal—Miss Sarah Gordon, Lynnville, Morgan county, Illinois.

Verbenas, greatest and best display, first premium—medal—L. Ellsworth, Naperville, Du Page county, Illinois.

The best and most tastefully arranged pair of flat hand bouquets, first premium—diploma—Dr. Fred Humbert, Upper Alton, Illinois. Second premium—medal—John Atwood, Alton, Illinois.

The best and greatest variety of dried plants and herbs, arranged and named botani-

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The best portable flouring machine, J. A, Forsmar, (?) Cincinnati, Ohio, first premium—medal.

The best morticing and tenoning machine, Topping & Brothers, Alton—medal.

The best sowing machine, C. W. Crosby, St. Louis—medal.

NO. 39—PHILOSOPHICAL, CHEMICAL, SURGICAL, DENTAL, DRAWING, PAINTING, SURVEYING AND LEVELING INSTRUMENTS AND APPARATUS OF FINE WORKMANSHIP.

The best display of philosophical and mathematical instruments, first premium—medal—W. & L. Gurley, Troy, New York.

Dental instruments, A. M. Leslie, St. Louis—medal.

The best theodolite, W. & L. E. Gurley, first premium—medal.

The best leveling instrument, W. & L. E. Gurley, Troy, New York—medal.

Surveyor's compass, W. & L. E. Gurley—medal.

One set fine telegraph apparatus, Caton A. Doyle, Ottawa, Illinois—medal.

NO. 41—STOVES, CASTINGS, CAST METALS, BRASS AND BELL FOUNDERS WARE.

The best parlor stove, "Young America," Michael McGuire, Alton—medal.

The best cooking stove, (coal fire) "New Era," Michael McGuire, Alton—medal.

Best cast iron gate, Morris Pawley, St. Louis, Missouri—medal.

Best iron fence, twenty rods, Pawley & McVedder, St. Louis, Missouri—medal.

NO. 42—VEHICLES.

The best display of choicest carriages, of various kinds, T. B. Edgar, St. Louis—medal.

The best two horse carriage, T. B. Edgar, St. Louis—medal.

The best carriage, for one or two horses, Buckmaster & Wise, Alton, first premium diploma. J. B. Clark, Bunkerhill, Macoupin county, Illinois, second premium—medal.

The best top buggy, J. B. Clark, Bunkerhill, Illinois, first premium—diploma.

The best open buggies, Shibley & Pierce, Carlinville, Illinois, first premium—diploma. Samuel Higby, Whitehall, Greene county, Illinois, second premium—medal.

G. S. Manning, Springfield, one buggy, improvement on springs—diploma recommended by committee.

The best wagons, Boyden & Oosfydel, (?) Urbana, Illinois, second premium—medal.

Charles Davis, Troy, Madison county, two horse wagon—commended.

Farm wagons, for all purposes, Morgan & Oberdorf, Paris, Illinois, first premium—diploma.

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NO. 44—COOPERS', CARPENTERS' AND BASKET MAKERS' WARE.

The best specimens cedar ware, C. G. Warner & Co., St. Louis—medal.

The best tight barrel, for liquids and meats, Miles Scott, Alton—medal.

The best lot of flour barrels, Miles Scott—medal.

NO. 45—FURRIERS', CURRIERS', TRUNK MAKERS' AND SHOE MAKERS' PRODUCTS.

The best traveling trunk, Turner & Sidway, Alton—medal.

The best pair of gent's winter boots, L. B. W. Stewart, Alton—medal.

The best plow harness, M. W. Carroll, Alton—medal.

The best wagon harness, for farm, M. W. Carroll, Alton—medal.

The best carriage harness, Turner & Sidway, Alton—medal.

Saddle and bridle, for general purposes, M. W. Carroll, Alton—medal. Saddle and bridle, for general purposes, J. J. Ingles, Springfield—medal.

The best riding saddle, (spring seat) J. J. Ingles, Springfield—medal.

The best lady's saddle, (spring seat) J. J. Ingles, Springfield—medal.

The best horse collar, Hildebrand & Co., St. Louis—medal. The best horse collar, Turner & Sidway, Alton—medal recommended.

NO. 46—BOOKBINDERS' AND PAPER MAKERS' PRODUCTS, HATTERS' AND UPHOLSTERS' WORK.

The best suit of bound books, Gardener & White, Quincy, Adams county, Illinois—medal.

The best fur hat, Joseph H. Adams, Springfield—medal.

The best silk hat, Lewis & Groshon, St. Louis—medal.

The best lot of caps, Lewis & Groshon, St. Louis—medal.

NO. 47—WORKED METALS AND HARDWARE—AMERICAN MANUFACTURE.

The best six axes, Topping & Brothers, Alton—medal.

The best bank lock, S. T. Hopson, Chesterfield, Illinois—medal.

The best horse shoes, Thomas Richardson, Alton, Illinois—medal. The best horse shoes, J. McLellan, Woodburn, Macoupin county, Illinois—recommended.

The best horse shoe nails, David Miller, Alton, Illinois—medal.

CLASS K.

NO. 48.—MUSICAL INSTUMENTS, &c.

The best band, William Erbeck's, German band, Alton—diploma and $50.

The best boudoir piano, first premium—medal—E. Trencher, (?) Alton, Illinois.

The best square piano, first premium—medal—Henry Lea, Alton, Illinois.

The best melodeon, first premium—medal—E. Trencher, (?) Alton, Illinois.

NO. 49.—SCULPTURE, PAINTING, &c, &c.

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The best animal painting, in water, first premium—diploma—John Fitch, Alton, Illinois.

The best animal daguerreotypes, first premium—diploma—C. T. Cornwell, Alton, Illinois.

The best specimen of flower painting, second premium—medal—Miss Ann Thornbury, Belleville, Illinois.

The best daguerreotypes, first premium—diploma—J. H. Fitzgibbon, St. Louis, Missouri. Second premium—medal—R. M. Cole, Peoria, Illinois.

The best ambrotypes, first premium—diploma—C. T. Cornwell, Alton, Illinois.

The best Illinois landscape, in oil, first premium—diploma—Miss E. C. Everett, Quincy, Illinois.

The best specimen of fancy painting, in oil, first premium—diploma—Mrs. R. Smith, Alton, Illinois. Second premium—medal—E. B. Bruner, Alton, Illinois.

The best copper plate engraving, second premium—medal—W. C. Fairthorne, Springfield, Illinois.

The best pencil drawing, first premium—diploma—Charles Kuechler, Springfield, Illinois. Second premium—medal—Mrs. L. B. C. Edwards, Belleville, St. Clair county, Illinois.

The best crayon drawing, first premium—diploma—E. W. Boyd, Godfrey, Madison county, Illinois. Second premium—medal—Miss Mary E. Allen, Alton, Illinois.

The best specimen of penmanship, first premium—diploma—Bryant & Stratton, Chicago, Illinois. Second premium—medal—J. W. McClure, Jonesboro', Illinois.

The best specimen of electrotyping, first premium—diploma—J. H. Fitzgibbon, St. Louis, Missouri.

Best specimen of architectural drawing, first premium—diploma—Charles Kuechler, Springfield, Illinois.

NO. 50.—DESIGNS AND MODELS.

The best design for farm cottages, first premium—diploma and $40—Joseph A. Miller, Alton, Illinois.

The best design of a building and furniture for high school, first premium—diploma and $20—W. F. M. Arny, of Bloomington, for design by J. C. Dore, esq., of Chicago, Illinois.

The best design of a building for district school house, second premium—medal—Oliver Albertson, Canton, Washington county, Indiana.

The best design for an ice house, first premium—diploma and $10—Oliver Albertson, Canton, Indiana.

The best design for a hog pen or house, first premium—diploma—Wm. O. Maxey, Old Ripley, Bond county, Illinois.

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The best fleece of middle wool, W. B. Hundley, Alton, first premium—diploma.

The best fleece of merino wool, H. S. Latourrette, Canton, Fulton county, Illinois, first premium—diploma.

The best ten yards of satinet, first premium—diploma—H. M. Armstrong & Co., Springfield, Illinois.

The best rag carpet, first premium—diploma—Mrs. Elizabeth M. Miller, Upper Alton, Illinois.

The best pair of woolen fringe mittens, second premium—medal—Mrs. E. C. Dewey, Jacksonville, Illinois.

NO. 52.—HOUSEHOLD FABRICS.

The best woolen carpet, 25 yards, Calvin A. Reese, Alton, Illinois—$5.

The best double carpet coverlet, Mrs. J. D. Blackburn, Paris, Edgar county, Illinois—$5.

The best 10 yards jeans, Miss Henrietta M. Earnest, Springfield, Illinois—$3.

The best woolen blankets, H. M. Armstrong & Co., Springfield, Illinois—$3.

The best 10 yards kerseys, H. M. Armstrong & Co., Springfield, Illinois—$3.

The best pair woolen stockings, (knit,) Mrs. Ursa Brown, Jacksonville, Illinois—$2.

The best worsted knit stockings, Ann Griswold, Bluffdale, Greene county, Illinois.

The best stocking yarn, H. M. Armstrong & Co., Springfield, Illinois—$2.

The best foot mat, Miss Mary Robinson, Alton, $3.

NO. 53.—NEEDLEWORK.

The best evidence of taste and skill in plain needlework, by a girl under fourteen years old—$5—Miss Annie Brown, Jacksonville, Illinois.

The best specimen of darning or repairing, first premium—$5—Mrs. H. J. Petterson, Alton, Illinois Second best specimen of darning or repairing—$2—Mrs. Dr. H. O. Johns, Decatur, Illinois.

The best specimen of darning or repairing, by a girl under fourteen years old, first premium, Miss Cora E. Kennicott, West Northfield, Cook county, Illinois.

The best pair of knit hose, first premium—$2—Miss R. L. Chapin, Waverly, Morgan county, Illinois.

The best pair of fancy hose, for children, first premium—$2—Mrs. Benjamin L. Dorsey, Alton, Illinois.

The best domestic counterpane, first premium—$5—Miss E P. Louther, Alton, Illinois. Second best domestic counterpane—$2—Mrs. L. H. Mathews, Alton, Illinois.

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and skill in ornamental needlework—$2—Mrs. Dr. Frederick Humbert, Upper Alton, Illinois.

A medal was recommended to Mrs. E. M. Mallory, of Caseyville, Illinois, for worked ottoman cover, and the same was allowed by executive bo rd. Also, a first premium of $5 to Mrs. D. Bates, of Pittsfield, Pike county, Illinois, for worked mantilla, allowed by executive board.

Miss Lydia Sayward, of Upper Alton, Illinois, lace cape and edgings—commended.

[NOTE.—The regular first premium under this head was awarded to a jewelry case, by Mrs. Dr. Frederick Humbert, of Upper Alton; but the article being removed, contrary to rule of the society, the committee awarded premium as above.]

The best evidence of taste and skill in ornamental needlework, by a girl under 14 years old, first premium—$5—Miss Ella Patterson, Alton, Illinois. Second best evidence of taste and skill in ornamental needlework—$2—Miss Agatha F. Humbert, Upper Alton, Illinois.

The best worked collar, first premium—$5—Mrs. O. D. Vedder, Whitehall, Illinois. Second best worked collar—$2—Mrs. Mary Buell, Upper Alton, Illinois.

The best needleworked handkerchief, first premium—$5—A. Ritchman, Highland, Madison county, Illinois. Second best needleworked handkerchief—$2—Miss Mary C. Sneed, Godfrey, Illinois.

Best needleworked infant's dress, first premium—$5—Miss Ann Wilson, Berlin, Sangamon county, Illinois.

Best needleworked skirt, first premium—$2—Miss Mary E. Hamlin, Alton, Illinois.

Best evidence of taste and skill in worsted embroidery, first premium—$2—Mrs. M. M. Van Deusen, Springfield, Illinois.

Mrs. E. N Wilson, Winchester, Illinois, piano cover—commended.

Best evidence of taste and skill in worsted embroidery, by girl under 14 years old, first premium—$2—Mary F. Washburn, Bloomington, Illinois.

Committee recommended a second premium of $1 to Miss Sarah Wright, of Naperville, Du Page county, Illinois, for worsted satchel, which was allowed by executive board.

Best worked chair cover, first premium—$2—Mrs. Wm. McMahan, Alton, Illinois.

Best crotchet work, first premium—$2—Mrs. Sarah E. Davis, Alton, Illinois.

Best pair slippers, first premium—$2—Mrs. Allen Withers, Bloomington, Illinois.

Committee recommended a second premium of $1 to Miss Carrie Close, of Decatur, Illinois, which was allowed by executive board.

Best embroidered dress, for child, first premium—$2—Mrs. S. Francis, Springfield, Illinois.

Committee recommended a second premium of $1 to Mrs. W. Stewart, of Alton, Illinois, which was allowed by executive board.

Best made fine shirt, first premium—$2—Mrs. E. L. Gillham, Exeter, Scott county, Illinois.

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CLASS M.

NO. 54—NATURAL HISTORY, GEOLOGY, BOTANY, &c.—NATURAL PRODUCTS OF ILLINOIS.

Best collection of shells, illustrating the conchology of Illinois, first premium—diploma and $10—Robert Kennicott, The Grove, West Northfield, Cook county, Illinois.

Best collection native woods, first premium—diploma and $10—J. L. Scott, Paddock's Grove, Illinois.

Best collection of named insects of Illinois, first premium—diploma and $10—Robert Kennicott, The Grove, West Northfield, Cook county, Illinois.

Best collection illustrating zoology of Illinois, first premium—diploma and $10—Robert Kennicott, The Grove, West Northfield, Cook county, Illinois.

Best botanical collection of Illinois, first premium—diploma and $10—Robert Kennicott, The Grove, Cook county, Illinois.

Best collection of stuffed birds first premium—diploma and $10—Robert Kennicott, The Grove, Cook county, Illinois.

Best collection of forty species of reptiles, first premium—diploma and $10—Robert Kennicott, Cook county, Illinois.

Best collection of twenty-five species of fishes, first premium—diploma and $10—Robert Kennicott, Cook county, Illinois.

NO. 55—CHEMICALS.

Best specimen winter candles, first premium—medal—Alexander Pringle, jr., Upper Alton, Illinois.

Best lot lime, Charles Trumbull, Alton, Illinois, first premium—medal.

Best lot lime, A. N. Russel & Co., Alton, Illinois, first premium—medal.

Best lot lime, J. Lock & Brother, Alton, Illinois, first premium—medal.

Best writing ink, first premium—medal—A. J. Gillingham & Co., St. Louis, Missouri.

NO. 56—GLASS, CROCKERY, STONEWARE. BRICKS AND TILES—AMERICAN MANUFACTURE.

Best lot of dappled yellow ware, &c., George Sweetenham, Upper Alton, Illinois, first premium—medal.

Best specimens of stoneware, Uhlrich & Wietfield, Upper Alton, Illinois, first premium—medal.

Best specimens of Terra Cotta ware, C. R. Harrison, Upper Alton, Illinois, first premium—medal.

Best specimens of Rockingham ware, H. Sawyer, Upper Alton, Illinois, first premium—medal.

NO. 57—MISCELLANEOUS METAL—WOOD AND STONE.

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Lums' patent self-acting farm gate, Geo. Johnson, Alton, Illinois—medal.

Two jars Washington cling peaches, preserved in spirits in 1855, James D. Burns, Alton, Illinois—medal.

One lot five Suffolk pigs, two months old, J. Y. Sawyer, Godfrey P. O., Illinois—volume "Illinois Farmer."

Two cans preserved plums, yellow gage and damson, A. G. Walford, Alton, Illinois—medal.

One iron safe burglar proof lock, Charles Hœhn, Alton, Illinois—diploma.

One riding bridle and martingale, Christian Wuerker, Alton, Illinois—volume "Prairie Farmer."

One lot rifle and shot guns, Chris. Wuerker, Alton, Illinois—volume "Illinois Farmer."

One specimen oriental painting, in form of an ornamental table top, Miss M. J. Judkin, Bunkerhill, Illinois—diploma.

One pair congress gaiters, Mrs. Withers, Bloomington, Illinois—$ 2.

One lot English collars, Turner & Sidway, Alton, Illinois—diploma.

One white patent leather saddle, Turner & Sidway, Alton, Illinois—"Illinois Farmer."

One lady's imported bridle and martingale, Turner & Sidway, Alton, Illinois—commended.

One set silver plated buggy harness, Turner & Sidway, Alton, Illinois—volume "Prairie Farmer."

One hard leather traveling valise, Turner & Sidway, Alton, Illinois—commended.

One lot Fairbank's platform scales, Clark & Co., St. Louis, Missouri—medal.

One lot ornamental leather work, Miss E. Reigart, Alton, Illinois—commended.

One fossil bone, B. F. Long, Alton, Illinois—diploma.

One set hay scales, Fairbank's patent, Clark & Co., St. Louis, Missouri—diploma.

One fat ox, four years old, and one fat steer, six years old, Buckmaster & Wise, Alton, Illinois—diploma.

One shell work cabinet and other articles—a magnificent display of skill, worthy special notice—Mrs. J. R. Woods, Alton, Illinois—medal and $ 10.

Worsted worked landscape, David Robinson, (boy under 12 years) Alton, Illinois—medal.

One lot mangel wurtzel beets, Geo. Boone, Alton, Illinois—volume "Illinois Farmer."

One glass show case, for hats and caps, Lewis & Groshon, St. Louis, Missouri—diploma.

One jar brandy peaches, L. C. McDonough, Alton, Illinois—medal.

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One circular saw mill, Stigleman, Johnson & Co., Alton, Illinois—diploma.

One mantle, worked with silk floss, Amelia Hoffmeister, Alton, Illinois—$ 1.

One lot essences, A. J. Gillingham & Co., St. Louis, Missouri—volume "Prairie Farmer."

One pyramid, made of candy, Mrs. C. M. Fisher, Alton, Illinois—diploma.

One lot marble sculpture, Beaumont & Milne, Alton, Illinois—diploma.

One hogshead, made by machinery, Stewart & Miller, Alton, Illinois—volume "Prairie Farmer."

One worked handkerchief, Mrs. Mary Bull, Upper Alton, Illinois—$ 2.

Two fancy suspension flower baskets, worked by a girl under seven years, Miss Sarah Wright, Naperville, Illinois—$ 2.

One sulky, Thomas West, Racine, Wisconsin—"Illinois Farmer."

One lot of locks. Charles Hœhn, Alton, Illinois— volume "Prairie Farmer."

One cider mill, Root & Platt, Alton, Illinois—diploma.

Two oil portraits, G. Douglas Sidway, Alton, Illinois—volume "Prairie Farmer."

One American eagle, living, Samuel Arny, Bloomington, Illinois—medal.

One pair Poland chickens, Samuel Arny, Bloomington, Illinois—medal.

One mill to scour and separate wheat, Campbell & Heberling, Quincy, Illinois—diploma.

One lightning conductor, M L. Arnold, Amboy, Lee county, Illinois—volume "Prairie Farmer."

One jar preserved pears, Mrs. E. Montgomery, Edwardsville, Illinois—medal.

One jar pear jelly, Mrs. E. Montgomery, Edwardsville, Illinois—commended.

One press wringer, for wringing clothes, Jonathan Read, Alton, Illinois—volume "Illinois Farmer."

One cutting pick, D. Miller, Alton, Illinois—volume "Prairie Farmer."

One undermining pick, D. Miller, Alton, Illinois—volume "Prairie Farmer."

One Gear's cutting, planing and moulding machine, M. G. Moise & Co., St. Louis, Missouri—diploma.

One pair lady's white satin slippers, L. B. W. Stewart & Co., St. Louis, Missouri—commended.

One pair fancy brocade satin slippers, L. B. W. Stewart & Co., St. Louis, Missouri—commended.

One Gear's machine for cutting and moulding irregular wood work, M. G. Moise & Co., St. Louis, Missouri—volume "Prairie Farmer."

One portable engine, M. G. Moise, St. Louis, Missouri—diploma.

One white moss velvet bible cushion, Mrs. E. M. Mallory, Caseyville, Illinois—$ 2.

One lot pickled peaches, and watermelon molasses, Mrs. J. R. Woods, Alton, Illinois—medal.

One grass wreath, Mrs. Mary C. Murray, Alton, Illinois—medal.

One specimen sign painting, George M. Sander, Alton, Illinois—diploma.

One lot gunpowder, J. R. Blakeman, Highland, Madison county, Illinois—com-

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One can preserved pears, Mrs. E. D. Andrews, Troy, Illinois—medal.

One lot Chinese sugar cane, Lewis McGowan, Upper Alton, Illinois—commended.

One improved post driver, D. H. Dragstrem, Waynesville, De Witt county, Illinois—"Prairie Farmer."

One pair worked pantaletts, Mrs. E. D. Andrews, Troy, Madison county, Illinois—$2.

One set Fairbank's counter scales, Clark & Co., St. Louis, Missouri—commended.

One double corn plow, W. F. Sheppard, Girard, Macoupin county, Illinois—medal.

One picture frame, Miss H. J. White, Upper Alton, Illinois—medal.

One lot fine ornamental pencil work, Horace Heath, Onarga, Iroquois county, Illinois—diploma.

One lot specimens card writing, Horace Heath, Onarga, Illinois—diploma.

One How's elliptic spring bed bottom, J. R. Bradstreet, Chicago, Illinois—commended.

One lot five pairs Brahma Pootras, Isaac Redman, Woodburn, Illinois—diploma.

One set tin cooking stove apparatus, N. Maguire, Alton, Illinois—diploma.

One lot wire work, E. R. Davis, St. Louis, Missouri—commended.

One lot fire proof safes, N. Constable, St. Louis, Missouri—not tried—merits not known.

One bull, "Kossuth," (without pedigree,*) J. M. Blackburn, Paris, Illinois—diploma and $10.

One lot Chittagongs, Homer Stanford, Alton, Illinois—commended.

One lot cow bells, J. C. Moore, Collinsville, Madison county, Illinois—commended.

One engineer's transit, William Groby, Troy, N. Y.—diploma.

One lot gold embroidery, Andrew Reinbolt, St. Louis, Missouri—commended.

One universal joint, a good article, worthy of special notice, J. Hinkley, Charleston, Coles county, Illinois—diploma.

One portable twier iron, A. Dillman, Plainfield, Will county, Illinois—commended.

One case millinery goods, A. G. Hough, St. Louis, Missouri—medal.

One lot pickled sweet pears, Mrs. S. S. Kinder, Edwardsville, Illinois—commended.

One lot plum preserves, Mrs. S. S. Kinder, Edwardsville, Illinois—commended.

One knit bed spread, A. Rockwell, Jacksonville, Illinois—commended.

One lot three dozen brooms, A. Rockwell, Jacksonville, Illinois—commended.

One case of brushes and fancy articles, A. Rockwell, Jacksonville, Illinois—diploma.

One lot four bunches shingles, G. L. Huntingdon, Springfield, Illinois. One lot weatherboarding and flooring, G. L. Huntingdon, Springfield, Illinois. Diploma for the two entries.

One tire shrinker, (for wagon tiring,) J. L. Warfield, Girard, Macoupin county, Illinois—commended.

One lot four-tined manure forks, D. J. Willard, Clayville, N. Y.—commended.

One cradle with scythe, J. C. Hamilton, Monticello, Illinois—diploma.

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One fire-board, shell and leather work, John Cooper, Upper Alton, Illinois—medal.

One lot agricultural and horticultural books, J. Sigerson & Bro., St. Louis, Mo.—commended.

One store lock, S. T. Hopson, Chesterfield Illinois—commended.

One straw fork, D. J. Millard, Clayville, New York—commended.

One hay fork, D. J. Millard, Clayville, New York—commended.

One hay knife, D. J. Millard, Clayville, New York—commended.

One soda fountain, C. W. Irwin, St. Louis, Missouri—commended.

One lot Victoria rhubarb, J. Sigerson & Bro., St. Louis, Missouri—volume "Prairie Farmer."

One crochet table cover, T. Homan, Alton, Illinois—$2.

One portable cider mill, O. Nichols, Lowell, Massachusetts—diploma.

One specimen of gold leaf, A. M. Leslie, St. Louis, Missouri—diploma.

One smut machine, A. C. Houts—volume "Prairie Farmer."

One bran duster, D. Callendine, St. Louis, Missouri—commended.

One lot cohl rabi, or turnip cabbage, Louis Draper, Upper Alton, Illinois—worthy of notice.

One large circular saw, W. T. F. Gage & Co., St. Louis, Missouri—diploma.

One case of handles, sledge, axe, pick, &c., J. Woodburn, St. Louis, Missouri—volume "Illinois Farmer."

One lot carriage wheels, Woodburn & Scott, St. Louis, Missouri—commended.

One lot spokes, bent-work for carriages, wagons, &c., Woodburn & Scott, St. Louis, Missouri—commended.

One jar preserved apples, J. S. Steidley, Carlinville, Illinois—commended.

One lot preserved watermelon, J. S. Steidley, Carlinville, Illinois—commended.

One set buggy harness, single, J. B. Edgar, St. Louis, Missouri—worthy of notice.

One sulky, John Cook, Springfield, Illinois—commended.

One lot plum butter, Mrs. L. M. Taylor, Chatham, Illinois—medal.

One lot plum preserves, Mrs. L. M. Taylor, Chatham, Illinois—commended.

One life-size photograph, J. H. Fitzgibbon, St. Louis, Missouri—diploma.

One bow and arrow of Indian manufacture, John Bryan, Rhodes' Point, Macoupin county, Illinois—worthy of examination.

One jar pickled peaches, L. Townsend, Collinsville, Illinois—commended.

One bottle preserved strawberries, five years old, Mrs. Dr. Harvey C. Johns, Decatur, Illinois—medal.

One hand hammer, Adolphus L. Loraine, Troy, Illinois—commended.

One lot railroad and boat spikes, Cary & Millspaugh, St. Louis, Missouri—commended.

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One colored view of Illinois state fair grounds, at Alton, Joseph A. Miller, Alton Illinois—diploma.

One design of a church, to cost $10,000, Joseph A. Miller, Alton, Illinois—diploma.

One design for a diploma*, Joseph A. Miller, Alton, Illinois—medal.

One lot specimens ambrotype, George L. Williams, Carlinville, Illinois—commended.

One lot cock and two hens, Brahma Pootras, A. M. Boardman, St. Louis, Missouri—volume "Prairie Farmer."

A diploma was awarded to Wm. M. Plant & Co., St. Louis, Missouri, for the best display of agricultural and other implements exhibited in this department, as follows:

Five iron sausage stuffers.

Two iron road scrapers.

One field roller.

One dozen apple parers and slicers.

One portable forge.

One agricultural furnace and cauldron.

Three Gedde's hinge harrow.

One handled expanding harrow.

A diploma was awarded to John B. DeBert, Chicago, Illinois, for the following articles:

One lot rubber hose, packing, belting, &c.

One patent arm chair.

One lot car springs, with jaw and buffer.

One patent double car seat.

CLASS F.—No. 29.

TRIAL OF REAPERS AND MOWERS.

During last spring, a proposition was made for a thorough trial of this class of implements during last harvest. On the 26th of June the following entries had been received:

Haines, Hawley & Co., Pekin, Illinois, entered Haines' Illinois harvester.

Richard Ellsworth & Co., Chicago, Illinois, entered Deits & Dunham's combined reaper and mower.

W. F. Flagg, Bloomington, Illinois, entered Flagg's combined reaper and mower.

Benjamin Smith, Batavia, entered reaper.

I. S. Love, Beloit, Wisconsin, entered reaping machine.

E. Danford & Co., Geneva, Illinois, reaper and mower combined, and single mower.

Manny & Co., Rockford, Illinois, Manny's reaper and mower combined.

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entered and exhibited in the miscellaneous department, and the following agreement, entered into:

"We agree to have no award on reapers and mowers till a trial next harvest.

Alton, Oct. 1, 1856.

JOHN S. WRIGHT & Co.,
Atkins' self-raker.
SEYMOUR, MORGAN & Co.,
By W. L. Bosworth.
J. L. DANFORD.
WM. B. READ.
W. M. PLANT & Co.
BUCKMASTER & WISE.
C. H. HORINE.
TALCOTT, EMERSON & Co.,
Manny's reaper.

No awards were, therefore, made in this department, and it is expected that the society will make early arrangements for a thorough and efficient trial during the harvest of 1857.

W. F. M. ARNY,
Sup't class N, No. 58, Illinois State Fair, 1856.

CLASS O, NO. 59.—PLOWING MATCH.

First premium—$25—Robert Mills, Salem, Illinois. Second premium—$15—S. O. Vaughan, Naperville, Du Page county, Illinois.

First premium—$15—for boys between 12 and 16 years, Clarence Mills, Salem, Marion county, Illinois.

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REPORTS OF COMMITTEES---FIELD CROPS, &c.

REPORT ON HEDGES.

To the executive committee of the Illinois State Agr'l Society:

The committee appointed by you to examine and report upon Osage orange, as a hedge plant, offer the following, as the result of their labors:

The committee visited the following farms, upon which hedges are growing, during the months of August and September, 1856, viz: That of Messrs. Murray & Van Doren, in La Salle county; James Happer and James N. Brown, of Sangamon county; James G. Strawn and John Armstrong, of Morgan county; and Lewis H. Thomas, of Macoupincounty, and in each case, notwithstanding the extreme drouth, they were growing well.

In answer to the many inquiries as to the best mode of sprouting the seed, and of the nursery culture, we are obliged to refer to the able essays of some of the most distinguished and successful nurserymen of the state; and as there is great variety of opinions upon this subject, we condense the plans of several of them, and leave the choice to those interested.

Mr. C. R. Overman, of McLean county, recommends that the seed be soaked in warm water for 48 hours, towards the close of winter, and then expose them to freezing once or twice, taking care to freeze all alike. The seed then to be kept in a cool, moist place, until the weather and ground are in a suitable condition for planting.

Mr. Henry Shaw, of Tazewell county, with quite as much experience, recommends that the seed be wet by dipping the sacks containing them in warm water for 48 hours, after which the seed should be spread out in a cool place, and be kept moist by covering with wet sacks or moss, but avoid heating or moulding.

The ground designed for the nursery should be new and clean,

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the clods may all be mashed. The seed may be sown by the ordinary seed drills or by the hand, by making furrows with a hoe or any convenient machine for such purposes, covering the seed from one to two inches deep. The cultivation necessary is to keep out the weeds, by hand, in the early part of the summer, and an occasional plowing and hoeing in the latter. Thus planted and cultivated, if the season is favorable, the plants will grow from eighteen to thirty inches in height.

The plants should be set in the hedge row at one year old. The usual way of removing them from the nursery is to mow the tops with an ordinary brush scythe, raking them together and burning them. Then, with a good team to a plow, with the mould board removed, and a sharp instrument attached to the point of the shear, and at right angles with the land side, to cut the tap roots. They are thrown out of the ground, to be gathered in bunches of from one to two hundred, and packed in boxes, for market. One of the errors commited by nurserymen is in packing so tight that the roots heat and mould, and thus destroy their vitality before they reach the point where they are to be planted.

For the best and most expeditious manner of planting in the hedge row and the after cultivation, we condense the written statements of James G. Strawn and John Armstrong, of Morgan county, both of whom are practical farmers and hedge growers, as may be seen by visiting their farms.

Mr. Strawn says: Plow your land fourteen feet wide, and, if sod, plow in June, the year previous to planting, leaving the last furrow where the hedge is intended to set; plow again in the fall, and harrow thoroughly. In case your land should be too wet for corn, commence plowing in the centre of the land, and throw up as high as possible. If there should be sloughs in line of the hedge rows, cut a ditch on each side, eight feet from the line, and throw mellow dirt to the centre.

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Mr. Armstrong says: Prepare the ground by plowing deep in the fall of the year, previous to planting; commence five feet from the desired line of hedge row, and plow, leaving the last furrow in the centre, making a land ten feet wide Thoroughly harrow, as soon as the ground is in order in the spring. Then commence in the centre of the land, and throw the mould back, with a good plow, and again harrow. Set stakes on the desired line, and plow a deep furrow, and set the plants (which should be fresh from the nursery) six inches apart, and cover with a hoe, pressing the earth firmly upon the plants by tramping around them. Draw the mould to the plants until the furrow is full. The usual manner of cultivating the plant in the hedge row, is to run a small plow, with the bar next to the row, throwing the mould from it; then with a hoe and hands remove *all* the weeds, for hedge plants are like all other plants that are desired to grow well, they must be kept entirely free from noxious intruders. The next dressing should be by reversing the operation, and throwing the mould to the plants, and hoeing as before. The plants should be allowed to grow the first year without trimming, and if the season is favorable, will be from two to three feet high. The next spring these plants should be cut off, with the brush scythe, even with the top of the ground, and the brush raked to some distance from the row and burned. The cultivation may now be left to the plow or fluke, and the plants will require about as much attention as a row of corn through a field, not more, unless some of the plants failed to grow, during the previous year. In that case the vacancies should be reset with healthy, vigorous plants, so that their growth may be equal to the rest in the row, as uniformity of size is very desirable, not only to the efficiency of the fence, but the beauty of the hedge row, which is one of its important features. The hedge row should now be allowed to grow the whole season, without cutting back, or what is called summer trimming. This (the second) year it will make a large growth, reaching from five to eight feet high. The next cutting should be the following spring, and should be within four inches of the last—again raking and burning the tops. The only cultivation necessary is to keep down the weeds. And

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this system of back cutting the hedge is thickened, and acquires strength to resist the depredations of any of the domestic animals.

The plan of summer trimming recommended and practiced by the men who first attempted to grow the hedge plant stunted the growth of the roots as well as the top of the plant, and prevented the main stocks, near the surface of the ground, from becoming sufficiently strong to bear the pressure of the winds, when the foliage was heavy, and from growing to a size that would render it entirely protective against small animals. This fact is of great importance to hedge growers, *i. e.*, that they must depend upon the size and consequent approximation of the main stock of the plant in the hedge for protection against small animals. The lower lateral branches, as the hedge becomes older, will die out from being too much overshadowed; hence the plant should be allowed to grow the whole summer, without cutting back, to gain the required size.

Too much importance cannot be attached to the correct cultivation and trimming of hedges, as upon these depends the success of the plant as a fencing material. In this vast prairie state, where the materials for fencing are so difficult to obtain, and the demand increasing beyond all precedent, it is all-important that a correct system of fencing should be commenced and followed up with that care and skill that will insure its entire success. The basis of this system the committee believe to be the Osage orange—or, perhaps, more properly the Maclura—the general use of which is here recommended—not, however, without this special advice, which must not be disregarded by those who would become successful hedge growers—that is, whatever is attempted with the hedge plant *must be well done.* The committee confess (and not without mortification for the farmers of Illinois) that they have seen quite as many failures in attempting to grow hedges as they have seen successes. But they are able to state, in great confidence, that the failures are, in all instances, owing to bad cultivation; and further, that they, in all their examinations, did not become acquainted with a case where proper cultivation did not produce the desired result. They find the plant growing well in all localities in the state; and notwithstanding the severity of the winter of 1855–6, there was no case of the roots of the plant being killed by the frost. The last growth of the branches was very generally killed, particularly

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all directions through the state, nothing possesses stronger claims upon those interested—presenting a complete barrier against the intrusion of stock, affording a lodging, on its windward side, for the drifting snow, and its leeward making an eddy into which the snow would accumulate, and thus relieve, to a great extent, the difficulty of snow drifts upon the track. Hedge rows along the line of railroads, after they are matured into a protective fence, would not require as much pruning as a farm hedge, and would be constantly increasing in efficiency, as a protection against snow drifts, and liable to this only objection, that it would completely obstruct the views of railroad passengers of the surrounding country.

The price at which the hedge fence can be grown places it entirely within the reach of all settlers upon the prairies, and will enable every man to inclose his premises with a beautiful and enduring fence, at less than half the cost of any other material, and may be grown upon the prairies without protection by other fencing, as is evidenced by that of Lewis H. Thomas, of Macoupin county, who has grown some six miles upon the open prairie, and so successfully has he cultivated his hedging that the society awarded him their special gold medal and diploma. He is also awarded the premium offered for the best thousand rods of hedging. The premium awarded for the best forty rods of hedge was won by John H. Armstrong, of Morgan county.

H. C. JOHNS,
Chairman of Committee on Hedges.

THOROUGH-BRED CATTLE.

REMARKS BY COMMITTEE.

The judges on short-horn, Devon, Ayrshire and other stock, say: They think there ought to have been a premium for these classes *separate* and *distinct*.

They further state, that they do not think the same committee capable of judging the different classes as at present arranged.

They further say, that there were three (3) Devon bulls on the ground, and so far as they are capable of judging said stock, think

REPORT ON SHEEP.

As chairman of committee on sheep, I would remark: That although the show was not equal to what I expected, and hope to see another season, it was very respectable, nevertheless; and many animals on the grounds were as good as I have ever seen in any state in the Union.

Stipp & Latourette, of Fulton county, and the Messrs. McConnell, of Sangamon, deserve great praise for their enterprise and public spirit in this branch of Illinois stock husbandry.

J. N. BANE.

REPORT ON FARM PRODUCTS.

HONEY, BREAD, &C.

BELLEVILLE, *Nov.* 20, 1856.

To DR. KENNICOTT,

Corresponding Secretary of the
Illinois State Agricultural Society:

SIR—Being appointed on the awarding committee of farm products, class G, No. 35, I attended the late agricultural fair, at Alton, and after the committee was organized, they authorized me to report: That, as the members of the original committee, except myself, failed to attend, a new committee was organized, who made an impartial and judicious examination of the farm products exhibited to them, so far as the time and occasion would permit. In the hurry and bustle of the scene—more than twenty thousand persons being present, and the greatest variety of attractions—the committee may have made some mistakes in their judgments which may not be satisfactory to some individuals.

The first articles presented to the committee were several lots of honey, not less than 10 lbs. in each. After giving the various specimens due consideration, the first premium of $5 was awarded to J. T. De Baum, of Godfrey, Madison county, Illinois, and the second premium, a medal, to James F. Mathew, Upper Alton, Illinois.

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the honey exhibited was beautiful—perhaps unsurpassed in the state—yet, "the statement in writing" of the raising of the bees, and the proper treatment, together with the best hives, is much more important than the exhibition of a few pounds of honey.

The bee, in its instincts and habits, is an extraordinary and wonderful insect, which the husbandman must understand, to some extent, before he can make this branch of agriculture profitable. But on a careful and judicious treatment of the bee, much profit may be realized from this branch of industry.

Some farmers say, "they have no luck with bees." Some have no luck with anything; which arises from the want of care and intelligence. It is all nonsense to talk about "luck," when cause and effect regulate all these matters. Good care and wisdom will always produce prosperity and "good luck" with bees and with almost all other things.

The greatest consideration with bees is to keep their enemies from them; and the moth is quite the worst, I believe. The hive must be made in the proper manner, and placed in a proper position to make the bees comfortable. It is becoming the popular opinion that the common hive, worth about 35 cents, is better than any of the patented hives. Tobacco smoke will drive the swarm from one hive to another, so that some of the honey can be extracted without resorting to the barbarous practice and sin of destroying these hard working insects.

In any hive the moth can enter wherever the bee can; and when the eggs of the moth are abundantly deposited the swarm is almost certain to be destroyed. The bee hives must be examined frequently, and the moths banished, to secure a good harvest of honey.

I think the enemies of the bees are worse now than they were forty or fifty years ago in Illinois. I recollect well that on the campaign in the fall of 1813 against the Indians the bee trees in the present counties of Pike and Adams were exceedingly plenty, so that the moth and other destroyers of the bees could not have been so plenty then as at present. They may again disappear.

The sponge and pound cake presented a beauty and sparkling elegance that would add grace and ornament to the most fashionable table of any wedding party, and did much credit to the taste and talents of the fair hands that made it. But it is to the manu-

bread and crackers, "the written statement" of their manufacture was not presented to the committee. It is exceedingly desirable that all the late improvements and inventions in the art of baking bread should be made known to the public, as the science of bread making is one of the most important considerations to preserve the health and to advance the life of the human family.

There are some general principles in chemistry interwoven in the manufacture of bread that all can understand and practice. This, alone, would be a great service to the public. Generally, in the cities the science of making bread is better known and practiced than in the country. Each family amongst the farmers manufacture their own bread, and many do not understand the art as they do in the cities, where great quantities are made.

The farmers generally make better corn bread than is made in the cities, and the bread, made properly of Indian corn meal, is better and healthier than any other bread, in my experience. One reason may be, that corn bread can be manufactured with less science than that from wheat or rye. But if the ladies could be made to believe that corn bread looked as genteel and fashionable on the table as white wheat bread, it would bring back again the old custom of using corn bread, and I think the people would be healthier by it.

The subject of the manufacture of bread is so important, that the worthy and efficient corresponding secretary will pardon me for suggesting to him to invite the exhibitors of bread at the late Alton fair to make out a "written statement" of the manufacture of the article exhibited, if not already done, and have it published in the next volume of the Transactions of the society.

Your obedient servant and friend,

JOHN REYNOLDS,

Chairman of the awarding committee.

HAMS, BUTTER, CHEESE.

REPORT OF COMMITTEE.

As chairman of committee No. 34, of Class G, I submit the following report. I regret that I cannot submit it to my colleagues

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HAMS.

The first premium on boiled ham was awarded to lot No. 2, W. F. M. Arny. I have not a statement of the manner in which it was prepared. The second premium was awarded to lot No. 1. This was a most delicious ham—nothing could be better; but next to the bone it was not quite so good as in other parts. The following is the statement accompanying this ham:

Pickle for this ham was prepared as follows, viz: 10 lbs. Turk's Island salt, 4 oz. saltpetre, 1 qt. molasses, 3 or 4 pods of red pepper, and 1 ounce of saleratus to each gallon of pickle. Put these in a kettle, with water enough to cover the meat, when well packed down; boil and skim, and when cold, put it upon the meat; let it stand from 5 to 7 weeks, according to size of the hams and temperature of the weather, when the meat will do to smoke. If beef, it may be taken out in 4 weeks. The above is sufficient for 100 lbs. of meat. The meat should be dry before the smoke is made —the smoking to be continued 2 to 3 weeks, a part of each day, allowing sufficient time for the smoke house to cool and the dampness to escape; and to facilitate the escape of the moisture, the covering of the smoke house should not be close. Smoke with cobs or hickory. Cut hams, taking off the leg up to the fleshy part of the thigh, leaving a lip of skin to hang by. After smoking, wrap in paper; then put into bags, and hang in a dry, airy place. This process will secure to the family the tenderest and best of bacon.

BENJ. F. LONG.

I believe that the following, added to Mr. L.'s statement, would be an improvement: Unjoint the chine from the hip joint, or socket, and remove the chine; run a knife down to the bone, in the thickest part of the ham; make a small slit near the bone, and insert a little salt; press the salt well down to the bone. I know the following recipe to be good: Insert a little salt near the bone, as above advised; put a little salt in the bottom of the pickling tub, then a layer of hams; sprinkle on salt; then place another layer of hams, and so on, till the cask is filled. Let them lie a week. Then take them up, brush off the salt, if any is left undis-

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BUTTER.

A great many lots of butter were entered, and nearly all of it was of *very good* quality. The first premium on tub butter, and the second premium on butter made in May or June, were awarded to Charles W. Murtfeldt, of Oregon, Ogle county. The following is his statement as to the method of making butter:

In penning these hints I would like to commence with the milking process.

First, then, let your hands be clean, and your finger nails short, and let the same hands milk the same cows as much as practicable; avoid all conversation or singing during milking, because cows should be milked quickly, and it will not do often to stop and "what did you say?" and stop the other, repeating the same question. Avoid, also, wetting the teats, and all noisy, ranting and cruel treatment of your cows, but use them well, and talk calmly and friendly to them. Where cows are stabled (I wish every cow in Illinois had a stall) they should be well littered with clean straw, or else you will have a sorry mess, instead of milk, sweet and clean, in the morning.

For straining milk I use a large strainer pail, which is never taken into the yard, but is always sweet and clean, in buttery or cellar, or wherever wanted. I strain my milk in six quart pans, not over full, and let the cream rise from 30 to 36 hours, according to temperature and weather—if a thermometer is used, at about 60 degrees. I skim off the cream and allow a little of the milk to pass along into a large flaring pan, which I think preferable to a jar or crock, and churn every day—on Saturday and Monday twice, to honor the Sabbath. Great care should be taken to have pails and pans well cleaned and scalded. It is impossible to make good butter, and have it keep, unless this part is well attended to. Your cellar, too, should be clean, and free from the *last* and *least* trifle of vegetable matter or smell. Whitewash it and use lime freely in early spring, and have it sweet when summer comes; and remember, also, milk and cream want air, and plenty of it, and butter, to keep, must be kept air tight.

I use a "Crowell" thermometer churn, and find it handy and convenient, and easily worked. Have your cream tempered to 62 degrees, and your cows well salted, and your butter will come easy. When the butter is well come, draw off your buttermilk, and have

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the ladle. If not sufficiently purified, repeat, and the color of the water will show whether your work is well done. Then salt with the best of Liverpool blown or Turk's Island salt, about an ounce to the pound, and for packing, a little more. Let your butter stand covered for four or six hours; then work it over, removing what little brine you may extract, and pack away, keeping your firkin well covered from the air, and fill it as soon as possible. A churning of butter which, from some cause or other, does not come hard, or of a color corresponding to what is packed, we use in the family. As soon as your firkin is full, place on it a clean, damp cloth, and cover with salt an inch or more, and head it up, and have a large stone to place on it when wanted.

CHARLES W. MURTFELDT.

The second premium on tub butter was awarded to C. G. Taylor, esq. The following is his method of making butter:

PLEASANT RIDGE, ROCK ISLAND COUNTY, ILLINOIS, *September*, 1856.

To the committee on butter and cheese of Illinois State Agricultural Society:

The exhibitors of butter and cheese are required to state, in writing, the mode of making and preserving butter and cheese, and the feed of cows, &c.

BUTTER MAKING.

My milk cellar is 4½ feet below the level of the ground, and 2 feet above, over which is my dwelling. The milk room is well ventilated, with five windows, with wire screens. The walls and the floor are plastered with hydraulic cement, and whitewashed twice a year. The milk is strained into tin pans, which rest upon wooden slats, called a milk rack. In this way the animal heat is soon expelled, the air having a free circulation all around the pans. At the temperature of about 60 deg. the cream will all rise in about 36 hours. It should not remain longer, before being skimmed; if it does, the butter is liable to be bitter, for the atmosphere has a great effect upon the cream. If the milk sours before that time, the cream should be removed, as it gains nothing by standing longer. This can be determined by holding a pan of milk between you and the window. If a light furze is formed over

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every day, and use the thermometer churn. No churn should be used unless a thermometer is attached. The cream is brought to the desired temperature by applying hot or cold water in the zinc chamber, and I commence when at 58 deg., with a slow motion. It will increase in warmth as the cream is agitated, 60 deg. to 62 deg. being about the desired point. From 30 to 40 minutes is as soon as the butter should come. If hurried, much of the cream is left in the buttermilk and wasted. When brought into a solid mass with the churn dash, the butter is removed into a large bowl, and carefully worked with a hand ladle until all the buttermilk is removed, then accurately weighed, and one ounce of ground solar salt is added to each pound of fresh butter, and thoroughly worked in. If the weather is warm, more salt is needed—not to preserve the butter, but the salt will dissolve and work off in brine at the second working. After remaining in the bowl about eight hours, the butter is worked with the ladle by taking about one pound at a time upon one side of the bowl and worked until it is quite free from brine; then removed to the jar or firkin and pressed solid, care being taken to leave no vacant space, with dead air. Care should also be taken not to work the butter too much—it will become oily, and the proper grain destroyed. While filling a firkin, a round, flat bag of very clean salt is laid upon the top of each batch, and snugly filled to the side or edges. Thus all air is kept from it. Butter exposed to the air will soon hurt, no matter how pure it may be. When the jar or firkin is nearly filled a round cloth is evenly laid upon the top of the butter, and salt to the thickness of about an inch is laid over it; then covered with a thick paper, if in jars; if in tubs, cover tight. No air should be allowed to reach the butter. I allow no water to come in contact either with the cream or butter. I prefer a cool, dry cellar to a spring house. If milk is placed in a damp room the vapor will fall upon the cream, which is very injurious. The dampness will gather into drops and become bitter. ***No sweet butter can be made from impure cream.*** More care is needed before the cream gets into the churn than after. Good clean fine salt is sufficient to preserve butter—"saltpeter and sugar," notwithstanding.

I have followed the dairying business for the last twenty years,

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Premiums on other classes of butter were awarded to S. L. Miller, of Paddock's Grove, Madison county, Wm. Squires, of Godfrey, and Mrs. John Mason, of the same place, but no statements from them (except those below) are in my possession. The committee regretted that they had not power to award more premiums on butter and cheese, as many of the lots entered were of excellent quality. One choice lot was accompanied by the following statement:

Mode of making butter, by Mrs. M. N. Gulick, samples of which are entered for exhibition at state fair, at Alton, Illinois, 1856.

The cows range upon the prairies for their feed.

The milk is strained into earthen vessels, put in a cellar, which is used for dairy purposes alone, skimmed at the expiration of 24 hours, and churned when four skimmings are obtained. The milk is then drawn from the churn and cold water put in its place, when milk is thoroughly *washed* from the butter before it is taken from the churn. One pound of fine salt is then added to thirteen pounds of butter, and well worked in with a common butter ladle. Let stand over night, worked again thoroughly, and put down where it is to stay, covered with a cloth, upon which is a layer of fine salt to exclude the air. M. N. GULICK.

Plainview, Macoupin Co., Ill., Sept. 30, 1856.

STATEMENT OF MARY MILLER, OF PADDOCK'S GROVE.

I milk eight cows of the common breed. Their only food, during the milking season, is the wild range. The milk is put in earthen pans and kept in a cellar until it sours; then skimmed and the cream churned every forty-eight hours in a common dasher churn. I use common dairy salt, and the butter is worked over until all the buttermilk is out. It is then put by until next day, when it is re-worked and packed in a stone jar. I never wash butter put up for winter use.

To make good butter there are two essential requisites, especially if to be kept for winter use. These are a dry, clean cellar and *perfect cleanliness* in every operation, from the udder to the jar.

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The first premium on one kind of cheese was awarded to C. G. Taylor, and on another to A. F. Bill. The following are their statements;

DIRECTIONS OR MODE OF MAKING CHEESE.

I milk my cows at night; strain the milk into a tub or vat. In warm weather I insert buckets of cold water to keep it sufficiently cool and sweet over night. In the morning I milk my cows and put the morning's and evening's milk together. Then heat it all to about the same temperature that it comes from the udder. Then we put in sufficient rennet to coagulate the milk in about forty minutes. It is then broken up with the hands until the whey begins to separate. The whey is then dipped off, heated and poured back; which process should be followed up till the whole is about as hot as the hands will bear. The curd is then wheyed off, broken up and stirred until it is cool. The curd cannot be broken too fine before going to press. When sufficiently cool, put about a common teacupful of pure fine salt, to every twenty-five pounds of curd. Press about twenty-four hours; after which the cheese should be kept in a tolerably cool and dry room, and be greased and turned once in twenty-four hours. Fresh butter or lard will do to grease with.

ARTHUR F. BILL,
Pike county, Illinois.

To the committee on butter and cheese, of
Illinois State Agricultural Society:

The rules of the society require of the exhibitors to state in writing the mode of making and preserving butter and cheese and the feed of cows.

CHEESE MAKING.

As the milk is drawn from the cows it is immediately strained into a vat. This vat is a new patent, and is better than any I have ever seen for cheese making. I will be obliged to describe the vat as I proceed in the making of the cheese. The vat is double—a space is left between the two. Into the upper vat the milk is strained, and cold water is applied between it and the low-

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pipes. With a little wood the water is warmed. Thus, the temperature of the milk is soon brought to the desired point to receive the rennet, which is about 90 to 95 degrees. Sufficient rennet is applied to the milk to cause it to curdle or coagulate in from 30 to 40 minutes. Then the curd is carefully cut, each way, into slices of about one inch square. Soon the temperature slowly increased. In about twenty minutes the curd is carefully broken up with the hand—increasing the heat and stirring often. When the curd is sufficiently hard, so as to *squeal* when you bite it, it is scalded. By this time the temperature is up to about 130 or 140.

There are hinges placed in the legs of one end of the vat, which is easily tipped; and through the curd strainer and whey gate the whey is soon run off. The curd is then dipped into a sink, over which is placed a coarse strainer, and allowed to drain quite dry. It is then broke up fine, and one teacup of ground solar salt added to curd to make twenty pounds cheese, and well worked in. After the curd is quite cool, it is placed into the hoop, and a light pressure is applied. In a few minutes more power is needed. After remaining in press about six hours, it is taken out of the hoop, and wholly covered with strong muslin, finely sewed on. Then reversed and replaced in the hoop and press. Then allowed to remain until the next day, to give place for another.

After pressing thus twenty-four hours, the cheese is placed upon the shelf, and allowed to stand until the cloth is dry. Then a preparation, made from anotta and butter oil, is applied sufficiently to fill all the interstices of the cloth. Turned and thoroughly rubbed three times a week, until ripe enough for use.

I use the self pressing press. I know of none in use that are better—the weight of the cheese being the power.

Respectfully submitted,

C. G. TAYLOR.

A premium was awarded to Mrs. Stephen G. M. Allen on old cheese. It was made in August, 1855, and while new packed in-

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the milk in a tin vat. When warm we dip it into pans or tubs; thus keeping it sweet until morning. Commence milking 4 o'clock A. M. A portion of the milk kept over night is warmed gently over a fire, which is poured, together with the milk from the cows in the morning, into the cold milk, which brings the whole mass to nearly blood heat; stirring in, at the same time, a small quantity of clear rennet, or as much as will convert the whole mass of milk into curd in half or three-fourths of an hour. When the curd is completely formed—so that by breaking a small place on the surface you perceive the whey is inclined to separate from the curd—we then break it with the hands fine, immediately, and follow it up through whole process of scalding, and keep it stirring until put to press.

The first whey that is dipped off must be warmed and added to the curd in the vat, until it is brought to rather more than blood heat again, and let it scald till a uniformity in the appearance of the particles is produced, which is ascertained by breaking and examining whether they be scalded through.

Cleanliness is necessary, throughout the whole operation, to insure a good and finely flavored cheese.

Yours, respectfully,
ISAAC HAVEN,
Macoupin county, Illinois.

The great number and excellent quality of the products of the dairy submitted to the inspection of your committee, fully prove that in these products we can *now* compete fairly with other states.

Respectfully submitted,
B. G. ROOTS.

REPORT OF THE COMMITTEE ON FRUIT, ETC.

GENTLEMEN—The committee appointed to adjudicate the entries in class H, in submitting their report upon the various products in this department, would remark that, owing to the past unusually severe winter, followed by a season of drought unparalleled in

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must be brief, or postponed for another year. Notwithstanding the many severe trials encountered from the combined effects of cold and drought, we found much with which we were highly pleased. The fruits presented in several collections were all true to name, and the selection of the "twenty-five varieties best for all purposes" evidenced (as it required) a degree of knowledge which can be obtained only through a thorough acquaintance, not of the individual merits of the fruits, separately considered, but their adaptability to general culture—the effects of soils, climate, and the hardiness and productive quality of the trees.

The varieties of fruit presented were varied and numerous, reflecting great credit upon the liberal industry of the individuals who so heartily lent you their aid in bringing together collections so rare, and thus creating an opportunity for social intercourse between nurserymen and orchardists, enabling them to interchange views and impart to each other valuable information respecting the nomenclature of fruits, the fitness of certain soils for different varieties, the effects of elevation, the influence of large bodies of water, and other circumstances of the treatment of their orchards and plantations, and particularly the adaptability of old and new sorts to certain limits, and the difference in the time of ripening the varieties in northern, central and southern sections of the state. These and numerous other topics are discussed at these annual gatherings of the people of a great state like ours, and are of vital interest to those who are about to plant with a view to reaping the largest profit from their trees.

The winter of 1855–6 will long be remembered by all growers of the peach throughout the west, for the general injury to trees of all ages, as well as the total destruction of the fruit buds. But the effects on the trees have been variable in the same latitude—for instance, in the vicinity of Alton, (where great attention, of late, has been paid to the production of the peach,) trees that had been stimulated to a late and vigorous growth generally ripened their wood as well as those standing in grass, and, where no tendency

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dered active by the late plowing and warm rains of autumn. The destruction of trees in the last named condition has been heavy, and in some rare instances whole orchards have been swept away; while those on elevated places, protected by timber, and those on the banks of large water courses, have been but slightly injured. The bluffs contiguous to the Mississippi river are becoming justly celebrated for the production and superiority of the finest varieties of this delicious fruit. The loss of the trees and crops this year ought not, and we trust will not, deter enterprising cultivators from investing largely in this most remunerative branch of horticulture.

Probably there is no state in the Union, or section of country of equal extent in the world, offering so many advantages to the fruit grower as Illinois, or in which may be concentrated such a variety of productions, or where more remarkable proofs of the superior fertility of the soil can be obtained. We are not in possession of data from which to attempt a tabular statement of the value of the fruit crop in this state; we will therefore confine our statement to the products of two orchards, and the prices realized.

Years.	Peach.	Apple.	No. of trees.	No. trees to acre.	Age of trees.	Bushels delivered in Alton.	Receipts.
1855	"		450	110	6 yrs.	1811	$5,433
1856		"	500		11 "	1800	1,809

The desire to obtain any new variety of fruit or plant as soon as introduced appears to have taken as strong a hold upon the minds of cultivators in Illinois as in the older states of the Union. Among the plants recently introduced and tested, the culture of which has been attended with marked advantage and success, we would instance the following: Orange Raspberry, originated by Doct. Brinckle, of Philadelphia. The great hardiness of the canes of this truly delicious and productive sort, justly entitles it to the favorable consideration of every owner of a garden, however small. Also, Merveille, a new French ever-bearing raspberry, of recent introduction; fruit rather large, canes quite hardy, bears enormous

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zenberg, Franklin Golden Pippin, Fall Gilliflower, Milam, Red Canada, Fall Red, Rambo, Tewksbury Blush, Autumn Pearmain, Alexander, Moor's Sweet, Jersey Black, Summer Queen, Long John, Hays' Wine, Jersey Sweet, Flushing Spitzenberg, Belmont, Vance's Early, Scollop Gilliflower, Pryor's Red, Ribstone Pippin, Fall Wine, Swaar, Fall Seeknofarther, Summer Pearmain, Benoni, Early Sweet Bough, Autumn Sweet Bough, Pumpkin Russet, Pumpkin Sweet, Cooper's Early White, Lady Apple, Lane's Red Streak, Pomme Gris, Dominie, Fall Orange, Hurlburt, Yellow Ingestic, Vandervere of Ohio, Bailey Sweet, Newark King, Seeknofarther, Dyer, Overman's Sweet, Sweet Winter Paradise, Baldwin, White Winter Pearmain, Red Romanite, American Golden Russet, Roxbury Russet, French Apple, Holland Pippin, Rawles' Janet, Talman Sweet, Harrison, White Bellefleur, Maiden Blush, Michael Henry, Yellow Bellefleur, Virginia Red, Beauty of Kent, Golden Ball, Lane's Sweet, Pomme Royal of Downing, Long Island Pearmain, Spice Sweet, Campfield, Rhode Island Greening, Moose, Ladies' Sweeting, Gloria Mundi, Summer Sweet Paradise, Roman Stem, Stroat, Peck's Pleasant, Surprise, Trenton Early, Peach Pound Sweet, Pennock, Vandervere of Downing, Fulton, Black Gilliflower, Cooper, Conhocton, Willow Twig, Kentucky, Kaign's Spitzenberg, Keswick Codling, Jonathan, Newtown Pippin, and two varieties without names.

To this large and interesting collection of many choice varieties —among them some of the early summer sorts—the committee have awarded the first premium for the "best and greatest variety labeled and true to name."

The collection of Wm. Stewart & Sons, Adams county, in two entries, were very fine, and indicate, most conclusively, a correct pomological acumen, worthy of the highest commendation and general imitation. To them is awarded the second premium for the second best and greatest variety; also, the first premium for the "twenty-five sorts best for all purposes," including Newark Pippin, Willow Twig, Yellow Bellefleur, Brown's Sweeting, Red

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Willis Willard, Jonesboro, Union county:

These specimens indicate the advantages of the southern and elevated portions of the state for the production of handsome specimens of fruits—the same varieties being more beautiful and much larger than those grown in other sections of the state. Among them was a large and productive variety, known under the local name of Buckingham. The committee were unanimous in considering this a desirable late fall and early winter apple. Recommended a premium.

John R. Woods, Alton:

This collection contains some extra large and well grown specimens of the leading sorts. He is awarded the third premium for twenty-five varieties best for all purposes.

John S. Galbraith, Mount Vernon, Jefferson county:

A choice selection of standard varieties. Also, eight sorts without names. To this lot the committee award the premium for the second best twenty-five sorts for all purposes.

Thos. Jones, Bethalto, Madison county, exhibited twenty-six varieties, to which the committee award the third premium for the third best and largest number of named sorts.

Dr. B. F. Long, Alton, exhibited nineteen varieties.

G. W. Long, Alton, sixteen.

B. F. Childs, Hardin post office, Calhoun county, six.

Thos. Bradbury, Griggsville, Pike county, twenty-three.

H. S. Spaulding, Alton, twenty-three.

E. Frost, Godfrey, Madison county, eight.

N. B. Lucas, Jersey county, twenty-two.

Thos. Dunford, Alton, thirty.

Chas. Howard, Alton, seventy-five.

John Sigerson & Bros., St. Louis, Mo., sixty-seven.

The correct nomenclature of fruits designed for the public eye, is deemed by your committee to be one of the chief and leading objects of these annual exhibitions; and when a collection, embracing varieties that are really meritorious, is presented in com-

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crative business in the propagation and sale of young trees, and who are annually sending out their thousands and tens of thousands of young plants—so far neglect the facilities now open to them for acquiring a correct knowledge of fruits, as to be unable to present specimens of the standard or leading varieties *true to name.* We do not deem theirs worthy to come in competition with collections in the preparation of which more care and judgment have been exercised. But for the reasons above stated, the three last entries—embracing as they did many varieties of merit, and those remarkably well grown—would have received a more favorable notice.

GRAPES.

For the largest and best collection of native grapes, Augustus Sheppard, Hennepin, Putnam county—first premium.

For the best dish of native grapes, (Catawba,) John R. Woods, Alton—first premium. To the second best single variety, (Isabella,) A. G. Woolford, Alton.

QUINCES.

For the best peck, Sigerson & Bros., St. Louis, Mo., extra large apple quinces—first premium. Thos. Jones, Bethalto, Madison county, apple quince, specimens large and well grown—second premium.

PLUMS.

Chickasaw plums, in three entries, by Stephen Green, Jacksonville, Illinois.

WINES, BRANDIES, VINEGAR AND CIDER.

Missouri Wine Company:

Twelve bottles Catawba champagne, not entered for competition, deserved and received particular attention; much relished by the committee and officers of the society. Decided to be equal to the best Ohio wines.

Geo. Barry, Alton:

Currant wine—awarded first premium.

Gersham Flagg, Madison county:

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Fisk & Walter, Alton:

Peach brandy, deserving special notice—recommend a premium. Also, brandy of wild cherry.

Green & Wilson, St. Louis, Missouri:

Wine vinegar—a very superior vinegar, highly commended by the committee.

Dr. B. F. Long, Alton:

Cider—Quality, best.

Wm. Stewart & Sons., Quincy, Illinois:

For the largest and best collection of ornamental and fruit trees—first premium.

Sigerson & Bros., St. Louis, Missouri:

Fruit and ornamental trees—Second largest and best display of fruit and ornamental trees—second premium.

Fruit picker, by E. Hibbard, Upper Alton:

Useful—recommended.

E. S. HULL,
For Fruit Committee.

ENGINES AND MACHINERY.

The awarding committee on engines and machinery, respectfully report: That in addition to their expression of approval of the articles exhibited in the class on which they were appointed judges, as evinced by their awards of premiums, they offer the following remarks on a few of the most deserving:

The steam engine exhibited by Messrs. Stigleman, Johnson & Co., of Alton, together with the circular saw-mill driven by it, attracted their attention, as a specimen of good and accurate workmanship and fine finish, as well as excelling in design and proportion.

The portable engine, manufactured by M. G. Moise, of St. Louis,

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A large circular saw, manufactured by W. F. T. Gage & Co., of St. Louis, deserves special commendation.

Mr. ——'s pump tube boring machine, as shown in his model exhibited at the fair, appeared to the committee as an instrument by which the endless chain pumps, now in such common use, may be made far more efficacious, as by it the tubes can be bored out from solid scantling, instead of being, as at present, composed of two pieces, imperfectly united and invariably leaky. The principal novelty in the borer is its having a tube ensuing the auger, within which a screw revolves, which removes the chips from the auger as fast as produced, discharging them at the rear end, thus enabling the auger to work through a whole length without clogging.

J. L. Warfield's tire shrinker appeared to the committee as designed on correct principles and likely to prove a useful instrument, though no opportunity was afforded them to witness its operation.

Sewing machines, of three manufacturers, were exhibited, viz: Grover & Baker's, Singer's, and Wilson's; all of them well and tastefully manufactured, effective in action, and to be ranked among the most ingenious and useful inventions of the age. Grover & Baker had the greatest number and variety of machines on exhibition, of which the "work-box machine" gave much satisfaction. Singer's machines looked substantial and simple, and, it is likely, are the best machines for trade work. Wilson's appear to excel in delicate stitching, and its reel-shuttle your committee looks upon as a most beautiful instance of mechanical invention. Our experience does not enable us to decide on the merits of the two kinds of stitches, one of which is made by a part of the machines of Grover & Baker—the rest, as well as those of the other makers, producing the same kind of stitch, though by different means.

In conclusion, your committee would remark that the inducements to exhibit machinery at our agricultural fairs do not seem sufficient to bring forward a display of manufactures in this and other branches, which shall be creditable to the state. The expenses and loss of time deter many from bringing forward their

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known in their own localities there are demands in other parts which they might well supply, the orders for which go to other places, through ignorance of the parties that their wants could be supplied within our own state.

Very respectfully yours,

EDWARD EVERETT, *Chairman.*

FIELD BEANS.

STATEMENT OF C. G. TAYLOR.

My soil is of a black loam, or common prairie soil. The ground upon which I raised my field of beans the past season, had been cropped or under cultivation five years. A part of it had received a light dressing of barnyard manure two years previous. Last spring the ground was plowed about six inches deep, harrowed and marked off in rows about three feet apart. I planted the common small white field bean, and at the rate of one bushel per acre. The seed was covered with a cultivator. When up about four inches, I run the cultivator through, twice in a row. When about ready to blossom, with a corn plow, threw a little dirt into the stalks. The crop received no other cultivation. From 74-160ths of an acre harvested 22¼ bushels of beans ready for market.

FELIX SCOTT'S WHEAT CROP.

STATEMENT OF THE MANNER IN WHICH FELIX SCOTT CULTIVATED HIS CROP OF WHEAT.

I raised this crop upon five acres of ground, in Shiloh Valley, St. Clair county. The ground was fallow and dark loam soil; was ploughed three times previous to seeding, and put in with

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crop of wheat the past season, and the quantity of land is five acres, and no more.

FREDERICK GRANER,
County Surveyor.

Sworn to before me, this 15th day of September, 1856.

N. NILES, *Justice.*

STATE OF ILLINOIS, }
St. Clair County. } Felix Scott being duly sworn, says, that he raised a crop of wheat the past season, upon the land measured by Frederick Graner, county surveyor, and that the quantity of grain raised thereon was 42 bushels 14 pounds per acre, and no more, weighed, and that the statements in regard to the manner of cultivation, &c., are correct, to the best of my knowledge and belief.

FELIX SCOTT.

Belleville, Sept. 20, 1856.

Sworn to before me, this 20th day of September, 1856.

N. NILES, *C. J.*

MISCELLANEOUS HOUSEHOLD IMPLEMENTS.

Your committee would respectfully submit the following report, in connection with their awards:

Many churns of merit were on exhibition, besides those receiving premiums; among which we recommend "the Crowell," offered by Messrs. Plant, of St. Louis, as a good one.

We would also recommend to your especial notice, a summer bake oven, exhibited by Messrs. Potwin & Moore, of Oregon, Ogle county, Ill., which bakes without heating the room in which it may be placed, and requires but little fuel. It is of cheap construction, and within the reach of everybody—a really deserving apparatus. Also, a wash tub, by Wisner, of Stephenson county, Ills., a piece of furniture nobody who has ever used it would do without. As a whole, the exhibition in our department was without competition.

In behalf of the com...

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HALF ACRE OF POTATOES.

STATEMENT OF C. G. TAYLOR.

My soil is a black loam, or common prairie soil. The first crop after breaking the prairie was Indian corn. Tl e ground for that crop was plowed in the spring of 1855. The cultivation was passing the cultivator each way through the rows twice. The corn cut up and removed. Last spring the ground was again plowed, about six inches deep, and marked off with a plow, in rows about three and a half feet apart. The seed was of two kinds, the pinkeye and the old English white, (a potatoe that I have ever known from a boy to be equal to any, taking the year through, and coming out ahead of most others during the potatoe disease.) Those selected for seed were of the largest and medium size, and cut into from two to four pieces each, and dropped in the drills about eighteen to twenty inches apart. The dropping was done by two boys under ten years of age, and by their inattention to their business, or by imperfect seed upon the half acre, many hills were vacant. The planting was done on the 25th day of May. The seed covered with a three bladed cultivator, by taking off the front blade and putting the horse in the furrow —the two hind blades throwing the dirt from either bank of the furrow equally upon the seed. Soon after the potatoes were well out of the ground, I run the cultivator through twice in a row; and when nearly ready to blossom, with a corn plow threw the dirt into the hills. The ground received no other culture. They were not hoed at all. No manure or fertilizers of any kind were used. I planted at the rate of about twelve bushels per acre. The amount measured from the one-half acre was 108½ bushels. After measuring off the half acre, from my potatoe field of about two acres, I counted out the missing hills, amounting to 1,036. Then from other rows adjoining, and digging in succession that number of hills, I got 39½ bushels—which, if they can be allowed to fill the vacancies in the half acre, would amount to 148 bushels, or at the rate of 296 bushels per acre.

I am fully in the belief that potatoes of a good fair size should be planted for seed. If "like begets like," which none can doubt

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ized. But my rule is to plant the largest and soundest potatoes for seed; the largest and best formed ears of corn, and use the plumpest and largest of all vegetables for seed, and sow the best of all grain of the cereal kinds.

[Mr. Taylor's general rule, *in regard to seeds*, is unquestioned. But we do not raise crops of potatoes directly from *seed;* but from whole tubers or cuttings of the last year's growth. In short, we increase the original plant; which, if of strong constitution, may be done as well from a perfect tuber, weighing one oz., as from an ounce cut from a large tuber, containing a like number of eyes in growing condition—and many say better. Yet there *is* question connected with the practice of planting small tubers, only—and that is, the possibility of forming a fixed habit by long continued repetition; but more proof is wanting.—*Ed.*]

PREMIUM PLAN OF A COUNTRY SCHOOL HOUSE.

BY OLIVER ALBERTSON, CANTON, INDIANA.

In presenting some rough sketches, representing the different parts of a school house, no effort at architectural drawing has been made—only a desire to exhibit one so arranged in connection with the grounds, and in construction, internal arrangements, &c., as to favor the cultivation and maintenance of all that tends to wholesome discipline, the true principles of good breeding and enlightened civilization in all its bearings.

'Tis true, beyond doubt, that a radical change must be effected in the minds of the masses of the people in regard to what constitutes the most profitable investment in securing ample educational facilities for their children, and equally true, also, that as general and complete a change *should* and *could* be made in the minds of the children as to what constitutes a *happy*, *becoming* and *profitable* pupilage.

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Parents and guardians holding the opinions they now generally

Great as the task may appear to the most ardent friends of the cause, there is yet much reason for patient labor and hope, from the fact that the sovereigns of the land are only in a state of lethargy; they have no actual dislike, when the thing is fairly explained, to such legal enactments as will secure the most desirable results. But there is still another point which deserves the unwearied labor and care of every advocate enlisted, and that is the individual labors and interest of *every* parent and child in properly securing and protecting everything connected with school houses and premises that will exert the least influence in the formation of character, either physically, morally or mentally considered. 'Tis difficult to conceive of a more inviting task for father and child, and one, too, that would beget so many and various profitable reflections, as that of adorning and cultivating the premises of a school house with the plants nature has so bountifully provided. In alluding to protection, let no one understand that surveillance which the rogue fears, but the training of public opinion among all to look upon every act that tends to lay waste or deface the retreats of science with indignation and scorn. Let every one who feels an interest in the cause contribute his mite, and, like the pebble in the water, the waves of influence will spread wider and wider, till they touch land on either side. 'Tis thus a superstructure may be laid whereon to build the liberties, happiness and prosperity of a great and free people, and upon such only can they securely stand.

Fig. 1 represents the ground plan of a school house, 35 feet long and 20 feet wide; front faces the south, having a porch 4 feet wide; then 3 rooms, 2 for lobbies—one for each sex, 6 by 7 feet, and entered by a door in each, thus affording pupils an opportunity to prepare before entering the school room, and also shut out cold air; one 6 by 6, for library, &c., before coming to school room proper. The teacher's platform is on the north end, and 4 feet by 20, raised 8 inches; a black-board the entire length of wall on platform—thus arranged, the students face the north—better about the light, and better in understanding their position when studying. The front seats on the desks and two benches, (R R,)

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The outside passages are 2 feet wide, and the inner ones 18 inches. Upon the whole, experience teaches it is much better for rural school houses to accommodate well the proper number for one teacher than to be larger and require two. The country being sparsely settled, to convene in large schools requires the pupils to go too far from home in inclement weather.

Fig. 2 is a hasty sketch of the shape of desks, flue for ventilation, the stove, &c. The flue for ventilation, where we desire to carry the smoke pipe up in it, should not be less than 14 by 20 inches in the clear, smoothly finished inside, to be open at the floor and at ceiling, and the top capped; the openings at the floor may have coarse wire grate over them; the one at ceiling should have a door hung, with pully and cord, to close at will. These measurements are intended for 40 or 50 scholars. The height of the story is 13 feet in the clear. An opening 2 feet in diameter should be made in the centre of the ceiling overhead, and placed under control by a cord, to aid in ventilation—the slat windows in each gable end give the current. Perhaps no better arrangement, which would be generally used and kept in proper order, could be devised than the using of either wood or coal burning stoves, and admitting the fresh supply of air underneath them, to be warmed before diffusing over the school room. The windows should be double hung, 3 on each side, 10 by 12 lights—21 to a window—raised 3½ feet from the floor; the size would be a little over 7 feet high, and nearly 3 feet wide; the light should be softened, as occasion called, by green shades. Each front door has a plain transom over it, for the admission of light in the lobbies; a window, protected with venetian blinds, for front of library room. The desks, if made wholly of plank, should have 1¼ inch uprights and seats; the remainder 1 inch. If iron shapes are procured inch will answer for all but the seats. The cupola, though represented in front end of building, would be more convenient over the library room. There's music in a bell.

The above is nearly similar to some plans laid for houses in the county of the author. Like this they are designed to be framed buildings, (but adapted to either brick or concrete,) of good, neat, substantial materials: the outside dressed and painted two coats:

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a workmanlike manner. They are contracted at $450; and this plan can be safely estimated at $500 the country over.

A plat is also given of what is believed would be a roomy and pleasant play-ground and site for the house. One acre, 10 rods wide and 16 rods long, varied as circumstances may require. Some lines are drawn, showing walks, an althea screen for division of paths, the Osage hedging and other things mostly explaining themselves. Diversity of trees, plants and flowers should be encouraged to be procured and cultivated by parents and teacher; and, indeed, the first arrangement of and the subsequent changes and improvements should be done by the school resolving itself into a committee of the whole, and then taking action thereon. 'Tis not only a delightful way of exercising the physical faculties of the pupils, but really profitable in many other respects. Fragrant flower beds, pyramids of creepers, extensive varieties of evergreens and the choicest shade trees of the forest, (indigenous or not,) would not be cherished in vain. Some dots are suggested for trees, to screen the wood house, &c., which is drawn to have a shed or bonnet, under which to store the playthings of the smaller children. These, too, might be made *significant*—blocks sawed to regular angles and marked or lettered, &c., &c. The fitting up of the grounds cannot be estimated properly, as it requires time, and should be a family-like labor of love.

[*See engraving.*]

PREMIUM ICE HOUSE—COST $130.

BY OLIVER ALBERTSON.

The principle of this house is claimed for convenience in filling, and, also, for lifting for sale and daily consumption. It is designed either for a sideling or level spot of ground. It has a shed or bonnet in front, to shelter the steps and protect persons while getting ice in inclement weather. The size of the vault, which is 11 feet every way, will contain, if properly packed, about 80

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But few words are necessary in explanation. First, excavate a space 15 feet square and one foot deep; then make it 6 inches deeper in the centre, tapering out to the edge, for water to gather in the middle; then dig a trench, some 14 inches square, from and under this centre to the end under the shed, where it is to terminate in a box or large hogshead sunk in the ground, from which the waste water can be dipped out. This trench and slant on the bottom of the excavation to be filled with fine gravel—the remaining part of excavation filled with wooden blocks, covered with shavings, before receiving floor. Inch plank, with notches sawed in proper places, to hold the studding, should be pinned to the bottom of excavation, and nailed fast by strips to each other; insert the studding; brace and strip at the top, and it is ready for boarding; the studding to be placed 2 feet apart, from out to out. Nail on the outside plank first, edge to edge, and as you advance with the outside let the teamster be filling in with the nonconductor. Rocks may be laid on the ground to support the sleepers, and the joists by strips let into the studs. The plates are 6 inches square, and rest upon the outside studs and strips that confine them together. The plate, in order to secure *thorough, regular and uniform* ventilation, is reduced in size between the studs, as seen in figure 3, so as to leave open spaces 4 by 16 inches under the eaves.

The rafters are 2 by 6 inches, the underside lined first, and the space filled as the upper is being put on. Good ventilation and double roof prevents an accumulation of warm air, and effectually preserves the ice. An oval blind in each gable end adds to the appearance and usefulness of the building. The floor over the ice may be laid loosely down, edge to edge, and 6 inches covering with straw is better than saw dust. A trap door, near the front end, should be provided for entrance. Ice can in no way be preserved so well as when sawed in nice, square blocks, and thus fitted in the house, without breaking; there are no spaces for air to get in, and in using out it lifts in cakes, without breaking in shivers and wasting. The wheel, as seen in figure 2, is 4 feet in diameter, with iron forks in the rim, to prevent the rope from slipping, which reaches in the vault for the person inside to raise and lower the box, which is filled by the one outside—his wagon being

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unbroken, dump it out, and while he is packing away the other can be filling up. It is equally as convenient for the man who markets ice. From 4 to 6 inches of straw should be placed between the ice and the wall, and a slight covering on the top. Hard wood shavings is preferable to straw.

The following bill will represent an average cost of the building:

Upright scantling, for studding, 3 by 4, 13 feet long, 64 pieces, inch measure, 1¼ cubic feet,.....	$10 40
Weatherboarding, 5-8 thick, for outside covering to studding, 1,100 feet,.....	13 75
Inch plank, 11 feet long, for inside of vat and floor, 600 feet,.....	7 50
Rafters, 2 by 6, 10 feet long—22 of them,.....	2 75
Sheeting, 3-4 thick, for covering rafters inside and out and floor over ice, 900 feet,.....	11 25
Scantling, for cripples, joists, floor sleepers, &c., 3 by 4 —20 of them,.....	3 75
Two plates, 6 by 6, 20 feet long, one 6 by 6, 15 feet long, 5 cents per foot,.....	2 75
Two posts, 6 by 6, 12 feet long, 5 cents per foot,.....	1 20
Shingles, 2,500, 5-8 thick, $3 per thousand,.....	7 50
Nails,.....	5 00
Ten cords of saw dust or spent tan,.....	10 00
Box, ropes, wheel and other extras,.....	10 00
Excavation, gravel, blocks, shavings, &c.,.....	5 00
Carpenter's bill,.....	39 15
Grand total,.....	$130 00

[*See engraving.*]

DESIGN FOR A DAIRY HOUSE.

BY C. G. TAYLOR.

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dows contain three panes of glass each, and are placed directly under the sills. In warm weather the windows should be removed, and screen frames, made of very fine wire, substituted—thus affording a fine circulation of air. The stairs are placed under the portico, thus sheltering them from the weather. Cistern, sink, weighing table and straining table as represented.

The bottom of the cellar, and also the walls should be plastered with cement, and walls whitewashed four times during the season. The pump is placed in the right of the work room. A drain to carry off the slop should be arranged under the sink. The partition between the work room and the milk room should be made of bricks or stone. The straining table, which is placed in the centre of the milk room, is also used as a skimming table. As the pans of milk are placed upon the racks they are easily removed therefrom to the table.

When the temperature falls below 60 deg., in the milk room, a fire should be kindled in the stove. No water should be allowed in the milk room, for any purpose whatever, except in cleansing the floor, and then as little as possible. Any other but a cool, dry atmosphere is poisonous to cream. *The time for putting milk into a spring house has gone by.*

The milk rack is made as follows: Two boards, six feet long and ten inches wide, are used as standards; into which, upon the edges, gains are cut one inch deep, two inches wide, and six inches apart, slats 16 feet long are nailed into the gains (which are exactly opposite each other) and extend beyond the standards about a foot—far enough to receive a pan. The lowest pair of slats should be about 18 inches from the ground, and all supported in the centre by pieces nailed to them and reaching to the floor. In a rack of 8 to 10 feet the supports are not needed. The pans of milk rest upon the edge of the slats, and thus the air has a free circulation over all parts of the pans, and the animal heat in the milk is soon expelled. If pans of milk are placed upon a board.

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They are manufactured by H. A. Roe, Ashtabula county, Ohio. The cheeses, when taken from the hoop, are placed on the tables in the centre of the cheese room, where they are easily handled, and may be kept until nearly cured, when they are removed to the side shelves. Screens should be placed upon the inside of the two windows to admit air and keep out the flies. This building is of sufficient size (either for butter or cheese making,) for a dairy of 40 cows.

I have been engaged in the dairying business, most of the time, for the last twenty-five years, and have seen and used many dairy fixtures, but none that combine more advantages than those here presented. I consider it more profitable to have butter and cheese dairy combined. Cheese of a good quality cannot be made in cold weather; therefore my practice is, to make butter until about the middle of June; then cheese until about the middle of September—having the warm weather to make and cure my cheese ready for market. No cheese is so good if cured by artificial heat. That part of the house exposed to the south should be well shaded near the ground, in summer, if butter making is then followed.

[*See engraving.*]

PLAN OF HOG HOUSE AND CORN CRIB.

BY C. G. TAYLOR.

Upon the other page* I present the outlines of a very convenient building for a hog house, which I offer for examination by the executive board.

Size 22 by 32 feet. Pens 8 feet square, with a door leading into each from the outside. Two inch plank is sufficient for partitions. Each pen having a separate trough; the hogs fed or watered on either side of the passage way, which is six feet wide. In the back end is a corn crib, 8 feet wide, extending across the

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dle, or crowd themselves together, the larger often injuring, if not killing the smaller ones. From four to six is enough for a pen, and these should be of as equal size as possible, if confined to fatten. A corn crib in connection, is very necessary, as the hogs can be fed with but little trouble, and the corn is housed from the storms. If the grain is to be ground or cooked, it will be as handy to get it from the hog house as from any other quarter. Therefore, hogs and feed should be close together.

No part of a hog house should be left uncovered, as some are. If any part is left uncovered, that part runs to swift decay.

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COUNTY ASSOCIATIONS.

Had all the county and other local societies of our state responded to the call of the late corresponding secretary of the state society, and presented as full reports as a few have done, there would have been ample material for a respectable volume from this source alone; and relying on a liberal response to that call, the editor did not make a memorandum of occasional information, or preserve published notices of fairs, as might have been done; hence, at the last moment, he has been compelled to resort to the columns of the Prairie Farmer for material to make up a list of 50 counties only. This is not right; the county associations have a greater interest in our volume of Transactions than even the state society itself, and should have contributed thereto at least three hundred pages of valuable matter. And let no one suppose that such publication is of but local importance. It is part of the history of the state, and has its practical uses also, as many business men and others can bear witness.

And then, as a means of improving the great agricultural interests, *six county societies*, in full operation, may be set down as equal to the *state society* in practical efficiency. This is not a mere assumption, but the result of calculation, based on long study and much observation. Beyond the range of about six counties, very few *unenlightened* farmers ever attend a state fair, and it is for the benefit of *these*, rather than the well informed, that the STATE appropriates money to help sustain the system.

ADAMS COUNTY.

SECOND ANNUAL FAIR, 1855.

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In presenting this report, the officers are conscious of the diffi-

in holding the late fair, rendered the production of a flattering and interesting report a matter of some difficulty. But if a due regard for truth does prevent the application of indiscriminate praise to the exposition of articles and animals in general, it renders of more value the honorary notice bestowed on those which really deserve it. The report, however, may be made serviceable, by showing in what particulars the objects of the society can be better carried out in future, and by giving a few remarks, suggested by experience, by attention to which the officers of the society, and its members generally, may co-operate with each other so as to make our annual fairs, in future, all that can be desired.

The question as to whether such a society could be sustained here with success, and not turn out a failure, as had been predicted by some parties who were dissatisfied with its management, may be considered as settled, and the society may be looked upon as a permanent institution, which will increase in usefulness as its aims and objects are better appreciated.

Much of the confusion at the first fair of the society was attributed to the want of rules, for which want the officers had for this fair amply provided, by carefully preparing regulations to meet every case, and publishing and extensively circulating them. But the officers have to acknowledge their error in supposing that their regulations would be honored with perusal, or, if read, that they would be attended to.

The society have now possession of a beautiful ground, every way adapted to their purposes, securely fenced, and well fitted up in other respects. The ground is extensive enough to accommodate the state fair, which it is hoped will be held here in a year or two. Arrangements have been made to retain the entire fence, and the more important part of the buildings, and a person has been engaged to take charge of the grounds, which will be kept during summer as a pleasant place of resort, where visitors can be supplied with refreshments. The grounds are, however, to be held subject to the uses of the society at any time, or for other purposes pertaining to its objects.

The design of an agricultural society is not wholly accomplished by the holding of a fair once a year, however extensive and

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ing of animals, and for other like purposes, each in its proper season; besides which, meetings should be held for the discussion of questions and disseminating information on agricultural subjects. But such movements must be made by the spontaneous action of the members of the society themselves. They must not rely wholly on the services of their officers to urge these matters, while the members generally look on with apathy, and withhold their assistance.

In this connection it may be as well to remark, that this society does not receive a proportionate support from those classes for whose encouragement and benefit it was more especially designed, namely—farmers and mechanics. The number of members is small when compared with the relative extent and importance of Adams county. If every farmer and every mechanic would become a member of the society, and use his influence and but a small portion of his time in furthering its objects, fairs might be held of which there would be reason to be proud, and premiums might be offered of an amount worth striving for. On the other hand, great liberality has been exercised by many, as the subscription list for the purchase of the fence abundantly proves; and that strong interest is felt is shown by the sacrifice of valuable time, which has been devoted to the society by a number of public spirited individuals. Too much of the labor of preparation is thrown on a few members, and the attendance at the business meetings of the society has been very small. This neglect on the part of the members has, however, furnished the officers with a retort, to make in answer to all complaints made respecting the premium lists or other arrangements, namely—that the complainants should have attended the meetings and have taken a part in the preliminary arrangements, and that as they have not done their part, the fault lies with them if they are not suited.

The fair was held on Wednesday, Thursday and Friday, October 24th, 25th and 26th, 1855. The cause of so late a period in the season being fixed upon was, that it was deemed advisable, at the time the date was determined on, that it should be subsequent

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delay the preparations, which were, neverthless, prosecuted with vigor, in spite of wet and cold. The roads were rendered so heavy that nearly all the stock (excepting horses) owned in the more distant parts of the county were unable to get to the fair, which accounts for the small numbers in these classes on exhibition. Many articles susceptible of damage were kept away, under the apprehension that the bad weather would continue.

The weather, however, cleared up, and continued to grow warmer and more comfortable to the close; and the fair, notwithstanding all discouragements, proved eminently successful, and appeared to give satisfaction to all.

The fair ground, lying about a mile south of the centre of Quincy, was a beautiful spot, mostly covered with a fine growth of timber, the leaves of which, until the week before the fair, were tinted with all the varied and rich hues of autumn in great perfection. At one extremity of the inclosure was a fine spring, and a pond for watering stock. Among the preparations, in addition to the strong, close board fence, of seven feet high, inclosing about twenty-three acres, may be mentioned the office and committee room, fitted up for the transaction of business, in a permanent manner; about 90 roomy stalls, for horses and cattle; three large exhibition sheds, with tables, for the display of articles, besides pens and other minor erections; and on an open, level spot, a ring of about 300 feet in diameter was inclosed with a rope, for showing and testing the speed and training of horses. Much labor had also been expended in grubbing stumps, leveling and clearing the land, and removing rubbish.

On the first day little was done besides entering and arranging the articles, which was attended with much difficulty, owing to nearly all exhibitors neglecting to write out their entries in proper form before coming to the fair. On the second day, with a brighter sky, things began to assume a brighter appearance. Large crowds were on the ground throughout the day, estimated at from 5,000 to 10,000 persons, including many from Missouri,

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their examinations and made up their reports in a hurried manner, but most were handed in so late that the awards could not be declared on the ground, as had been intended.

At 11 o'clock the Rev. Mr. Billings delivered an address on "Thought and Labor," which was highly appropriate to the occasion, and was delivered in an eloquent and impressive manner. The orator has kindly furnished a copy for publication with this report, which will be read with pleasure and advantage. The fair closed about 4 P. M.

The funds taken during the three days of the fair, together with the balance in the hands of the treasursr, were sufficient to pay the premiums, and to defray all the expenses incurred, and leave a balance to be applied towards the purchase of the lumber of the fence. The amount already subscribed for that object will, when collected, come within a few hundred dollars of the sum required, which, it is thought, there will be no difficulty in making up by additional subscriptions. The society will then be in a condition, with its fence and buildings paid for, and its grounds ready prepared for use, to justify the offer of an extended and liberal list of premiums, and a larger expenditure in preparations for the fair of next year.

The subjoined list of premiums awarded has been made up and revised from the reports of the awarding judges. This duty has been one of considerable difficulty, arising from the imperfect manner in which some of the reports were rendered. The judges were, in the first place, carefully selected by the managing committee with regard to the classes on which they were required to act. But of those originally appointed scarcely one-third reported themselves for duty, and the committees had, consequently, to be filled up by any who could be prevailed upon to serve, without regard to their qualifications. Most of them performed their duties in a highly satisfactory manner, for which they are entitled to the thanks of the society.

PREMIUMS AWARDED.

We give only such of the awards as are deemed of most general interest.—*Ed.*

CLASS 1.—FARM CROPS.

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James Hunter, of Ellington township, for his crop of wheat, raised on land measuring 13½ acres. Whole produce 544 bushels, averaging forty bushels and three-tenths per acre. The specimen exhibited was remarkably fine, being the best exhibited. The land on which this crop was raised had been in corn for the three years preceding. Sowed 16 bushels of white wheat, equal to one bushel and eighteen and a half one-hundreths per acre. No account kept of the expense of cultivation and production;..... $16

Adam Taylor, of Ursa township, for his crop of potatoes (Neshanocks) raised on one-half acre of land. Whole produce 136 bushels, equal to 272 bushels per acre. Grown on new land on the border of a prairie, cleared last spring. Soil a light clay loam. Small potatoes, uncut, planted about the middle of May, in rows 3½ feet apart. Plowed and hoed once, about the time of blooming,..... 8

NOTE.—As some dissatisfaction was manifested among those interested, at the small number of premiums offered for competition in the second, third and fourth classes, a committee, with the consent of the managing committee, reorganized the premium list in those classes agreeably to the wishes of the stock raisers; they preferring to divide the gross amount of premiums, and share the honors among a larger number, rather than to compete for a few premiums of larger amount. The managing committee have, however, largely increased the whole amounts of premiums in these classes above what was at first offered. Owing to the reorganization above spoken of being performed in a somewhat hurried manner, it is likely that mistakes have occurred in classifying the awards, for which the managing committee are not responsible.

CLASS 2.—HORSES.

A.—BLOOD HORSES.

STALLIONS, FOUR YEARS OLD AND UPWARDS.

Best, E. Moore, of Payson, "Tom Crowder," eight years old..,..... $6
Second best, Elliott Combs, of North East, "John Richards,"..... 3

STALLIONS, THREE YEARS OLD.

Best, C. Antrim, of Ellington, "Selim," three years, five months old,....,.... 4
Second best, D. McDaniel, young "Sir Charles," three years, five months old, 2

Mr. J. B. Creighton, one of the judges, does not concur in the opinion that the above animal is worthy of a premium.

STALLION COLTS, TWO YEARS OLD.

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SUCKING COLTS.

Best, W. Barclay, of Mendon, "Young Onus," five months, eighteen days,.... 2
Second best, W. Leachman, Ursa, "Queen of the West," five months, twenty days,.... 1

Both the above were sired by E. Higbee's "Grey Eagle."

BROOD MARES.

Best, Abel Fox, of Quincy, "Kate,".... 4
Second best, W. P. Barclay,.... 2

B.—HORSES OF ALL WORK.

STALLIONS, FOUR YEARS OLD AND UPWARDS.

Best, E. Moore, of Payson, "Young Virginia Nigger," five years old, sixteen hands and three inches high,.... 6
Second best, James Knox, Quincy, "Tuckahoe,".... 3

STALLIONS, THREE YEARS OLD.

Best, E. Higbee, Mendon, "Selim,".... 4

STALLION COLTS, ONE YEAR OLD.

Best, Holman Bowles, of Fall Creek,.... 2

C.—DRAFT HORSES.

STALLIONS, FOUR YEARS OLD AND UPWARDS.

Best, Joel Darrah,.... 6

As the owner's name is not found on the books as a member, and the animal is not entered according to the regulations, the premium will not be paid.

SPECIAL PREMIUMS AWARDED.

J. R. Throckmorton, Louis county, Missouri, bay stallion,.... $6
H. Mead, of Augusta, Hancock county, filly "Pigeon," two years old,.... 2

CLASS 3.—MULES AND JACKS.

JACKS, THREE YEARS OLD AND UPWARDS.

Best, John Henderson,.... 6
Second best, J. W. Richards, Marcelline, "Black Hawk,".... 3

JACKS, TWO YEARS OLD.

P. S. Judy, of Gilmer, "Sir John," two years, five months old,.... 2

CLASS 4.—CATTLE.

DURHAM.

BULLS, FOUR YEARS OLD AND OVER.

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BULLS, ONE YEAR OLD.

Best, F. G. Landis, Columbus, one year, six months old, weighs 1045 lbs,..... 3

BULL CALVES.

Best, Jameson & Sons, of Ellington,..... 3
Second best, W. H. Carlin, of Quincy,..... 2

COWS, THREE YEARS OLD AND OVER.

Best, Jameson & Sons, Ellington,..... 6
Second best, Jameson & Sons, Ellington,..... 3

HEIFERS, ONE YEAR OLD.

Best, H. C. & E. Lawrence, Melrose, "Snowdrop," seventeen months, full blood Durham,..... 4

The mode of exhibiting both horses and cattle adopted by the the owners, it is thought may be much improved, by keeping the animals in motion, either in the ring or around other parts of the grounds, or by "picketing" them among the trees, where they can be fully examined by visitors. They should only be confined to the stalls at night, in bad weather, or while feeding.

CLASS 5.—SHEEP.

BUCKS.

Best, Jarvis Jackson, of Columbus, "Dowden," seven months old; Cotswold and Southdown breed, bred in Kentucky, weighs 113 lbs.,..... $4
Second best, same owner, "Gilmore," seven months old, bred by owner; Cotswold and Bakewell breed, weight 119 lbs.,..... 2

EWES.

Best, Jarvis Jackson, of Columbus, two years old, bred by owner in Kentucky; Cotswold and Bakewell breed, weight 133 lbs.,..... 3
Second best, same owner, bred, &c., as above, weight 125 lbs.,..... 2

CLASS 6.—SWINE.

BOARS.

Best and second best, John Aten, of Payson, two pigs 6½ months old,..... 6

No others in this class considered worthy of premium.

CLASS 8.—FRUIT.

COLLECTIONS OF APPLES, CORRECTLY NAMED.

Best, Stewart & Sons, of Payson,..... 5

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COLLECTION OF FOREIGN GRAPES.

Best, A. Keltz, of Quincy, grown in Quincy, vines from Baden, in Germany,.. $2

REMARKS.—The collection of apples exhibited by Stewart & Sons was the largest, consisting of 71 varieties, but Geo. Johnson's, of 45 varieties, was considered equal to it in other respects. Several other collections of fine quality deserve honorable notice, viz: H. Kent's, of Ellington, 30 varieties; Jos. Totten's, of Burton, 28 varieties; and D. E. Scarborough's, of Payson, 40 varieties. Stewart & Sons' stand was handsomely decorated with evergreens and flowers.

CLASS 9.—VEGETABLES.

REMARKS.—The show of vegetables was rather small, owing to the lateness of the season, but it was very good of the several kinds exhibited, so that it was found difficult to decide, in some instances, which were the best specimens.

CLASS 10.—GRAIN.

INDIAN CORN.

No sample considered worthy of premium by judges, though in any country but this the specimens exhibited would have been looked upon as remarkably fine.

CLASS 12.—DAIRY AND FARM PRODUCTS.

FRESH BUTTER, (15 ENTRIES.)

Best specimen, Miss M. Johnson, of Melrose, ... $2
Second best specimen, Miss Jane Cleveland, of Ellington, ... 1

BUTTER NOT LESS THAN THREE MONTHS OLD.

Best specimen, Joseph Totten, of Burton, (3½ months old,)..... 3

CHEESE.

Best, Mrs. H. B. Baldwin, of Mendon,..... 2

HOME-MADE BREAD.

Best loaf, Miss M. Johnson, of Melrose, ... 2
Second best loaf, Miss M. Bowles,..... 1

REMARKS.—The great number of excellent specimens of butter,

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CLASS 13.—AGRICULTURAL IMPLEMENTS, TOOLS, &c.—OPEN TO ALL.

PLAIRIE PLOWS.

Best, made by Broaders & Bro., McDonough county,..... $4
Second best, made by H. Peters & Co., Palmyra, Mo.,..... 2

TWO HORSE PLOWS.

Best, made by H. Peters & Co., Palmyra, Mo.,..... 2
Second best, made by S. Miller, of Liberty,..... 1

SINGLE HORSE PLOWS.

Best, H. Peters & Co., Palmyra, Mo.,..... 2

CULTIVATORS.

Best, J. Johnson, of Hancock county, (Immel's patent,)..... 2

REAPERS AND MOWERS.

Best, L. & C. H. Bull, for "Atkins' Self Raker,"..... 5

CORN PLANTERS.

Best, L. & C. H. Bull, for "Brown's two-horse Corn Planter,"..... 2

GRAIN SEPARATORS.

Best, L. & C. H. Bull, for "Davidson & Grubb's,"..... 2

STRAW CUTTERS.

Best, W. D. Morgan, Quincy,..... 2
Best assortment of agricultural implements, tools, &c., of county manufacture, L. & C. H. Bull, Quincy,..... 5
Best assortment of agricultural implements, tools, &c., not of county manufacture, L. & C. H. Bull, of Quincy,..... 5
Extra premiums awarded to L. & C. H. Bull, for "Randall & Jones' corn planter,"..... 2
Samuel Miller, of Liberty, for double corn plow,..... 2

REMARKS.—The mower of Danford & Co. is recommended to the patronage of farmers.

D. W. Hughes' hand corn planter is considered very good for a single machine.

Some brooms, made by L. A. Weed, of Mendon, are commended to the notice of ladies in the habit of using such articles.

The sub-soil plow of Ruggles, Nourse & Mason, of Boston, is

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which has fallen under their notice in this state, which, both for style and beauty of workmanship, excited their highest admiration.

CLASS 15.—COUNTY MANUFACTURES.

COOPERS' WARE.

A. S. Drake, of Quincy, assortment of barrels, staves, headings, &c ,—machine made—first rate work, ... $3

FOUNDRY WORK.

Machine castings and tuyere irons, by W. D. Morgan, of Quincy. One of the above, a large bevel cog wheel, deserves particular notice as a superior specimen of smooth and perfect casting, exhibited just as it came from the sand. It was moulded by Hugh Templeton. The maker of the pattern also deserves high recommendation, ... 3

STOVES, ETC.

A. Comstock & Co., of Quincy, for the best display of county manufactured stoves,..... 3

The practice of giving the names of the mechanics actually employed on the work, is highly commendable, as it makes known those whose skill entitles them to praise.

We are here compelled to remark on the lamentable deficiency in the exhibition of county, or rather Quincy manufactures, which, with the few honorable exceptions mentioned above, is calculated to give a stranger a very imperfect idea of the resources of our city. Not a single specimen of machine work was on exhibition, in a place where steam engines and all sorts of machinery are manufactured in large numbers. There were no cabinet wares, no wagons, no blacksmiths' work, and but few agricultural implements of home manufacture on exhibition; the premiums for the latter article, being mostly carried off by *more enterprising* parties from other states and counties. It is surprising that such an opportunity for making themselves and their productions known to strangers and others visiting the fair should be so neglected by our mechanics and manufacturers.

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MR. BILLING'S ADDRESS.

[Let every one read this address.—*Ed.*]

Every indication of a growing interest in effort to subdue, cultivate and make more fruitful this fair earth which God has designed for the present home of man, is a hopeful sign of our times. We may well rejoice when the public interest is drawn to such avocations as naturally tend to the peace, industry and progress of our race. It is well for parents and children, neighbors and friends, and visitors from abroad, to come together on an occasion like this, and find a healthful excitement in viewing the trophies of peace, in seeing what the earth can yield under human culture, and what may be done by industry and skill. It is well to look around upon this display of fruits and flowers, these burnished ploughshares and cultivators, the scythes and pruning knives of polished steel, and other industrial implements, inviting to the healthful labor of the field—all showing how genius and art may contribute to the subduing of the earth, making the "desert blossom as the rose." Such are objects and pursuits which God can bless and man rejoice in.

Let me, then, congratulate the officers and members of the "Adams County Agricultural Society," in the success which has attended your efforts in awakening so much interest in this, your second annual fair, and that so much of the best mental and physical force of the county is flowing into peaceful and industrial channels.

You will not expect, in the part you have assigned to me, any instruction in practical agriculture or the mechanic arts, such being somewhat foreign to my habitual studies and pursuits. My aim will be more general. If I can say something to show that every one is morally bound to leave the world better and wiser for having lived in it—that the obligation to be industrious and useful rests equally upon all—and that useful doing in any ca-

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of labor, idleness, is—there is death—death in the physical and animal kingdoms. This is also true of deity, for God is not matter, which is the form of death, but spirit, which is the life of life, wherever that life is. He is never inactive, never idle, but is always at work in every possible variety and form of beauty, beneficence and sublimity. He has inscribed the praises of labor on all the firmament, and chanted it in the music of the spheres. By his own vitalizing energy he moves everything else to action —to labor for results. He is the Supreme Artificer, the great laborer in the universe. The mystic dance of worlds, ten thousand times ten thousand mighty globes, in swiftest motion, but in perfect method, crossing and recrossing one another's path, without collision, are but the machinery that his skill has devised for the accomplishment of labor, with the greatest success and order. "All nature is but art." The sun is the great central wheel, in the machinery of our solar system, by and to which all the planets are *banded*, and by whose motion all the rest are put to work, and kept in just those distances that are necessary to preserve them in their places, to produce vicissitudes of seasons, and thereby set the earth at work producing plants, and animals, and sustaining life in all its forms. If the *band* that bound the earth to the sun were but an inch shorter or longer, there would be disorder among all the heavens, and on earth not a plant would grow, nor an animal live nor move. Were the sun not to work, other worlds could not keep their places, or if they could, horror would seize the face of nature; this earth would be motionless, not a dew drop would fall from heaven as a tear to bemoan over the tomb of a once animated, but now dead world. Now all is action—all is work. The whole graceful universe throbs and changes before us, renews itself at every instant, and nothing remains idle. The eternal law, the stern old principle of motion, more constant than the morning, more ancient than the stars, in whose grasp these frail leaves of autumn flutter and wither, that another spring may bud anew, all speak the mighty epic in which labor is writing its own praise throughout the earth.

So is man, by labor, by exertion, by action, to rise to the high-

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which man is born, has its frame and furniture prepared to his hand, but the finishing is assigned to him. His brain and his limbs were all constructed to the end that he should work. In this world he is apprenticed to everlasting labors under the Great Master Builder of the Universe, and when he goes out of this world he is to labor on in the high journey of an immortal existence and progress, for heaven is no place for indolence, and angels ought to be more usefully employed than *sleeping*, or exulting in the bliss of *doing nothing*.

It is a common sentiment that labor was imposed upon man as a "curse," or a punishment for sin; that the order of God for Adam to eat his "bread by the sweat of his brow," was a penalty for transgression. This is a false idea, but it has had a large part in casting reproach upon honest labor. The first thing we read of Adam, after the breath of life was breathed into him, is that he was placed in the garden "*to dress and to keep it.*" This was before the "fall." He, like all who have followed him, was made for exertion. Sin or not sin he must work, and the *absence* of this would have been a "*curse.*" Rightly regarded, work is man's greatest blessing, and out of it, he is out of his element. Even thorns and thistles are no curse, but create the necessity of exertion. They grow only on the *grave* of labor, *never* beneath its feet. This notion that useful toil is a "curse" and degradation, is too common in our day, as it always has been. A heathen poet once said it was the "slave's duty to plow, and the freeman's business to enjoy the fruit of the plowing;" and the foolish notion is not discarded yet. The ability to do nothing seems a most desirable ability in many, and the man who has "retired from business" to laziness is often envied. The children of the poor seek to get rid of labor, and the children of the rich neither learn a trade, nor till the soil, until they find themselves in the almshouse, which sometimes happens. Many people apologize for being found at work, and make foolish excuses for being busy, as though they were doing something mean, of which they were ashamed. But find them doing nothing, where they ought to be ashamed and make an apology, and they seem proud of it.

It is one of the important missions of this age to elevate labor in popular esteem; to unite THOUGHT with LABOR, and LABOR with

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matter is shapeless and void to all man's true purposes. The elements of nature are in a rude and useless state. The river runs in waste to the ocean, and the ocean rolls but a vast desert of waters around the world; the timber is in the heart of the wild forest, and the stone in the ledge; the ore lies buried in the earth, undug and unworked; the fire and the water are hidden forces, and the lightning plays at hap-hazard along the sky. But as man unites THOUGHT with LABOR—brings the powers of the understanding in aid of the physical powers of the human frame, then he gains dominion over the elements, makes of them his servants to submit to human rule, follow human bidding, and work together for human happiness. Then he fells the woods, builds cities, bridges the streams, tunnels the mountains, navigates the rivers and ocean, strews abroad his harvests, and sends messages by lightning.

Contemplate in one individual the progress which the race has made. Take one of those *squirming oblong bundles*, which some good matron carries in her arms, which people generally call a baby; the mother, more pet names than can be found in the dictionary. If this thing should grow up, and stand upon the earth passively and unconsciously, imbibing the dew and sap, and spreading his arms to the light and air, he would become but a vegetable—a tree. If he should grow up without purpose or improvement, and capable of neither, with no guidance but instinct —no powers but those of digestion and locomotion—nothing but stomach and limbs—he would be but a mere *animal*. But he grows up capable of improving, of thinking and working, of exerting the hand of ingenuity, and pouring his own thoughts into the moulds of nature, fashioning them into forms of grace, and fabrics of convenience, and converting them to purposes of improvement and happiness. As he delves wearily by the stream of water that pours down the mountain side, foaming and dashing in its course, his eyes glisten as the thought comes into his mind that that water might be made to labor for him. Then by

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water wagon, and harnessed to it a tandem team of fire and water, and furrowed the mad ocean

"Against the wind, against the tide,"

till he put old Neptune himself to the blush, and bade him hide his diminished head beneath the briny deep. Then he saddled his great fire horse on land, whose sides are steel, whose lungs are of brass, and whose heart is the red hot fire of Lehigh, and he hitched him to a *string* of wagons, and took in a whole village and half its corn and cattle: with his finger he controls the burning and puffing fire steed, till he bade him go, and onward he flew, vieing with the wind; up the long hill he labors, over the deep glen he skims, breaking the stillness of the forest with his snort, scaring the eagle from his eyrie, with the breath of his nostrils weaving a wreath around the mountain brow; his sharp, quick breathings bespeak his impetuous progress, a stream of fire reflects his course; on dashes the resistless, tireless steed, until the morrow's sun finds him at rest in some far distant mart of commerce, the partakers of the wizard journey unthinking of their night's adventure. Unsatisfied still, he turned aside and cast his thinking gaze above, and as he saw the red lightning blazing through the wide canopy of heaven, involving the whole world in one sheet of lurid flame, and heard the thunder with its deep and heavy artillery, striking in upon his soul, he would invade the very arcana of the sky, and find *there* an amazing agency for his purposes, sublime to his thoughts. So he reached up and caught the red lightning in his hands, and brought down the very thunderbolts of heaven and bade *them* be submissive to his will, and run of his errands up and down the continent, accomplishing more than was ever painted by the wildest fictions; more wonderful than the forests, rocks and streams, moving in obedience to the fabled lyre of Orpheus.

Such is the dominion which the human mind, united with human toil, has established over the material world. Slowly, for many centuries, the race has been toiling up to these things, and now they have attained them, they still keep their way onward. For we cannot doubt that wonders now unknown are in reserve,

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science, like all things else, are progressive. They are moving powers, animated principles. They are instinct with life; they are, themselves, the intellectual life of man. Nothing can arrest them, for there is no end to all truth—no bound to its discovery and application. You may as well think to build a tower, from the top of which you can pluck the sun from its throne, as prescribe a limit to discovery and invention.

There can be no doubt that, through inventions of the past hundred years, the control which man has acquired over the elements—setting water, fire and lightning to do his work—and through labor-saving machines, the productive power of the community has been increased fourfold. Yes, by machinery, I suppose one man can accomplish as much now, in one hour, as he could a century ago in six. It has been computed, "that in consequence of the immense developments of natural and mechanical resources, the labor now actually performed in England would have required the best efforts of at least twenty times the population of that island two hundred years ago."

So much has been accomplished by the union of THOUGHT with LABOR, and the inventors of the plow, the loom and the ship have brought the human race more largely into their debt than all the bloody race of conquerors, or all the kings and queens who have cursed the earth.

But I must not enlarge, as I wish to present, before I close, a few practical hints. Time will permit no more than hints in so vast a field of thought.

The true object of labor-saving inventions should be to promote a more extensive union of THOUGHT with LABOR, by abridging the amount of human toil, and setting free a great amount of time from devotion to mere physical wants, and leaving it for social, intellectual and religious cultivation. Thus, only, can they become any great blessing to man. The head is to work for the relief of the hands. Machinery is to do the work of bodily toil, that the leisure which is thus accumulated may be devoted to study, reading and social intercourse, so that men may grow up some-

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ble—knowledge. If he gain splendor, he loses what is more splendid—accomplishment. If he gain an estate, he loses an empire of manly worth. What doth it *profit* a man if he gain the whole world and live a blockhead. Or what shall a man give in exchange for his soul's culture! Surely "the *life* is more than *meat*," if it will not sell for as much in the market, and cannot be transmitted by last wills and testaments.

Yet it seems to be held by many, that mental cultivation and manual labor are not intended to go together, but that a privileged few are to do the thinking for the many. It is a most insolent assumption for any individual or class to claim this monopoly of thought, and he who urges it has neither a proper respect for labor nor human nature.

So long as the best cultivation of a man is thought inconsistent with the life of a farmer or mechanic, so long will labor be thought unattractive and disgraceful. And yet the farmer and mechanic often, themselves, regard thought and labor inconsistent. When they educate their children, it is not that they may be educated farmers or mechanics, but that they may *escape* the father's despised vocation. The "father's pride and mother's darling" must be sent to some go-cart of a seminary to learn to extract mathematical roots, and scorn the extraction of horticultural ones—to be ashamed of the blue frock of his father, or the saw and axe of his sweaty brother. Then he must be barreled up in some medical or law school, or ground "to order" *and labeled* in some theological mill, in due time to be turned into the world a blundering physician—a preacher, who puts an audience asleep twice a week —or a lawyer, who kicks conscience out of doors on the plea that he "*must live*"—a necessity not readily perceived by any one but himself.

By such a process the world loses many a tolerable farmer or mechanic, and, in turn, gains nothing. Now it seems to me that the farmers and the mechanics need more respect for all the ways of manly industry—need to feel that labor is noble in themselves, and would be in their children. They need to realize the dignity and true meaning of labor—to feel that agricultural or mechanical life is consistent with and demands the highest cultivation, and that, by a union of thought with labor, any pursuit may be made

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—results in a loss, to a great degree, of the manly independence of each. Were the working class a thinking class, and the thinking class a working class, then the *many* would be less dependent upon the *few* for their thoughts, and the *few* less dependent upon the *many* for the fruits of physical toil.

Then the plowman and mechanic would be better able to recognize and appreciate genius and talent, and the professional man better able to recognize and appreciate the true uses of labor, and feel that he is ennobled by it, by being placed above a servility of compliance to the many. Then the laboring class will seek for professional men, not to do their thinking for them, but to help them to think more vigorously and effectively. Then the occupation of those teachers in church and state, who have no ideas in advance of the people, whose only capital is a weak appeal to the prejudices and passions of the community, will be gone. Then (to speak of my own profession) the teacher of religion may do his duty more faithfully, without fear of the poor house. He may say, "I shall preach, and if you don't pay, I can live by work of my own hands." Then he can *afford* to say to the man who gets his living at the expense of his brother's welfare, and attempts to cancel his sins by paying a pew tax, or putting a reluctant dollar into the missionary box, "there is not a greater heathen in all New Zealand than yourself."

As members of a republican government, the laboring class needs intelligence, for nothing but this can direct aright. Want of thinking in the mass is the great curse of our civil institutions; and, in the vile scramble for office, the laborer often becomes the dupe of the designer, in whom a single pulse of justice and humanity never throbs. All nations are great asses; some are ridden by kings, some by priests and some by nobles. America has a heavy burden of politicians on its foolish back. Where the carcass of ignorance is, there will the demagogues be gathered together.

But I must close these suggestions. Gentlemen of this agricultural society, and all present, it has not been my aim to flatter, but to serve you. Every one sustains other relations than their trades or professions. Each belongs to a home, a country, a church, a race. Man is only truly manly when he unfolds all his

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and study the geographical, political, social and religious tendencies of the age, and dignify his occupation by contributions from every region of thought, and thus build himself up in the strength of his noble nature. I would have every man say:

"No dread of toil have we or ours;
We know our worth and weigh our powers;
The more we work, the more we win.
Success to trade—
Success to spade—
And to the corn that's coming in!
And joy to him who, o'er his task,
Remembers toil is nature's plan;
Who, working, THINKS—
And never sinks
His independence as a man."

BOND COUNTY.

The second annual fair of the Bond County Agricultural Society was held at Greenville, on Tuesday, Oct. 3d, 1855. Elective officers of previous year retained.

The exhibition of this year was more full and satisfactory than that of 1854, giving assurance, not only of its utility, but of the determination of the people to sustain the institution permanently.

The show of horses was especially fine. Every department of the exhibition was creditable, whilst that of the ladies displayed an elegance and profusion which commanded general admiration.

It may be useful here to record a meritorious and liberal act, as worthy of general imitation. It is the grant of ten years' lease, to the sole use of the society, of suitable grounds upon which the annual exhibition and fair may be held. This voluntary donation was made by Jacob D. Lansing, esq.

The third annual exhibition and fair of the county was held on the 8th and 9th of October, 1856, upon the grounds of the society, which were suitably inclosed and prepared for that purpose.

The exhibition of this year was greatly superior to those of the

When useful efforts to promote the general welfare are successfully made, a record of the fact is not simply a barren compliment, but may prove valuable as a motive to similar efforts on the part of others. With this view it may be well to state that at the annual meeting of the agricultural society of Bond county, held on the first Monday of January, these two resolutions were adopted:

Resolved, That application be made to the state legislature for a general law, under which every county agricultural society in the state may organize, with suitable powers for efficient action.

Resolved, That application to the same be made for an appropriation of one hundred dollars to each county society in the state, for the encouragement of the same, &c.

In conformity with these resolutions, application was immediately made to the legislature, and that body promptly responded to the call by the passage of both these useful acts, as recommended by the society.

BROWN COUNTY.

From the Prairie Farmer, we learn that this society was organized at a meeting of citizens at Mt. Sterling, April 14th, 1856.

President—Jacob Hersman.

Vice Presidents—Sanford McDaniel, Isam Scroggin and O. P. Gentry.

Recording Secretary—Robert N. Curry.

Corresponding Secretary—L. S. Grove.

Treasurer—B. R. Parke.

CARROLL COUNTY.

Eds. Prairie Farmer—Your request for information regard-

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24th and 25th of September, 1856. The officers of the society are named below:

President—John N. Beach, Mount Carroll.

Vice President—John Wilson, "

Secretary—David H. Wheeler, "

Treasurer—W. J. Tompkins, "

Executive Committee—B. M. Frohoek, James Hallett, Samuel Preston, Mount Carroll; T. Aldrich, Elkhorn Grove; Monroe Bailey, Argo; William H. Hawk, Cherry Grove; E. Brock, Milledgeville; R. H. Gray, Savanna; Henry Smith, Elkhorn Grove.

We expect to have a fine exhibition at the approaching fair. Our county is young, but her citizens are enterprising, and enter into this work with a right good will.

DAVID H. WHEELER, *Secretary.*

Mount Carroll, Sept. 4, 1856.

CHAMPAIGN COUNTY.

Organized in 1852, and, it is said, has advanced rapidly. The fair for 1856 was appointed for Sept. 23d.

President—A. G. Carle.

Vice President—Henry Dickerson.

Secretary—T. R. Webber.

Treasurer—Jos. O. Cunningham.

It is much to be regretted, that from so rich a farming county, and one known to contain some of the best herds of the state, no report of their society's doings has been presented for publication.

CLINTON COUNTY.

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COOK COUNTY.

HISTORICAL SKETCH OF THE CHICAGO MECHANICS' INSTITUTE.

By Z. Eastman, Corresponding Secretary of the Institute.

As the Chicago Mechanics' Institute is assuming the position, before the public, of a fixed and indispensible institution, with a character and influence beyond the local limits of the city, it is proper that it should fill a large place in the present volume of your Transactions.

The institute was organized in February of 1842, at the time when Chicago was beginning to experience its first best days. It is one of the earliest public institutions, projected by the "old residents," who had the confidence to believe that a future was predestined to Chicago.

In January of 1842, at a meeting of a few citizens to hear a lecture at the room of a phrenological professor, a motion was offered to organize a debating society to furnish entertainment for the people for the season. S. D. Childs, esq., a well-known old resident of the city, was present, and suggested as a substitute for the debating society, the organization of a mechanics' institute. The suggestion was favorably received. It was there determined to call a public meeting at a day soon following, for the purpose of perfecting the organization. Mr. Childs volunteered to advertise the meeting in the next issue of the only daily paper. In compliance with this invitation, a public meeting was held in the city council room, then a room fitted up for their use on the northwest corner of Clark and Randolph streets—the same lately occupied by the Commercial Bank. The room was well filled with mechanics.

The first matter on record, is a meeting held in this room "by the mechanics, pursuant to a call," February 16, 1842, for the purpose of organization. C. M. Gray was the chairman, and S. J. Sherwood, secretary, of this meeting. On motion of Ira Miltimore, who was ever after an active member, it was resolved, "that the mechanics of Chicago deem it expedient to form a mechanics' association, to be called the Chicago Mechanics' Institute;" when by

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the same place, February 23d, the first regular officers were elected, as follows: President, Charles M. Gray; vice-president, Elijah Smith; corresponding secretary, David M. Bradley; recording secretary, Wm. H. Kennicott; treasurer, S. J. Sherwood; librarian, Thos. Whitlock; directors, S. D. Childs, Isaac Speer, J. H. Hodgson, Ira Miltimore, Wm. Rankin, C. E. Peck, Isaac L. Milliken. The by-laws were passed at the next meeting, when the association was fully organized. The records of proceedings for the first year are very complete. Weekly meetings, with an occasional exception, always by adjournment, were held through the year. New members, only a few at a time, were admitted at each meeting. At a special meeting, March 17th, by request of the board of directors, to ratify their action, the proposition of the Trinity Church was accepted, to wit: "To lease to the Mechanics' Institute, the west room of the saloon, with the small room attached, week days, for fifty dollars per annum; and the institute build a desk for its own use, and use of said church, to be the property of the institute." The saloon, the hall on the third floor of the old brick building, on the corner of Clark and Lake streets, now divided into offices, and part used as the United States court room, which was then the popular resort for all public meetings, became hereafter the headquarters of the Mechanics' Institute. Lectures, by members of the institute, were immediately commenced. On the 7th of April, Ira Miltimore delivered the first lecture, on the "Importance of Sustaining the Chicago Mechanics' Institute." Mr. Rankin, a canny Scotchman, brass founder, April 14th, delivered a lecture on Electro-Magnetism, and "exhibted the electro-magnetic machine." This machine was presented to the institute by Mr. Rankin. The "thanks of the institute were unanimously awarded to Mr. Rankin for the lecture and the machine." Debates were commenced at this meeting, which, with the lectures, were kept up weekly through the year.

The 4th of July of this year, was celebrated under the auspices of the institute. In July the hall was granted to Mr. Mott to teach twenty lessons in geography on a new plan. A committee was

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In November, the board of directors recommended to the institute to apply to the legislature of the state for a charter. The proposition was accepted, asking, also, for a donation of a lot, on which to build a hall. Isaac N. Arnold, esq., was a member at that time from Chicago, and through his efforts the charter was speedily got through the legislature.

A vote of thanks to Mr. Arnold was passed "for his promptness in procuring the act of incorporation for the institute." At the same meeting, by motion of Ira Miltimore, it was voted to take a census of the operative mechanics of the city, with their occupations and apprentices.

In the annual report, made on the 11th of January, it was stated that the institute consisted of 131 members, that the receipts of money into the treasury had been $218 75; the expenses for the year, $184 83. The following officers were elected at the second annual election, January 11th, 1843: President, Ira Miltimore; 1st vice president, J. M. Adsit; 2d vice president, George F. Foster; recording secretary, John B. Weir; corresponding secretary, John Gage; treasurer, John H. Hodgson; librarian, Horatio Cook; directors, E. D. Bates, I. Speer, I. L. Milliken, H. Ross, E. Smith, B. Bailey.

In some of the early meetings of this year, there seem to have been sharp discussions as to the class of occupations that should be styled mechanical. A doubt of the kind seemed to perplex the census takers, as well as to define the rule of membership. It was finally decided by vote, that butchers, bakers, brewers, tallow chandlers, house movers, wig makers, and lard oil manufacturers, *were mechanics*, and eligible to membership, as well as a place in the census.

February 4th, a lecture was delivered by Col. John Wentworth, editor of the Chicago Democrat, on "Social Reform, or the Dignity of Labor." A committee was appointed to procure the printing of the address: but whether successful or not, in application, the

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professor, in view of taking meteorological observations. The subject was referred to a committee, who reported at the next meeting in favor of the purchase of a barometer and thermometer; which, in time, were received, and put in the charge of Dr. Meacham, at the light house, who kept a daily record of the state of the weather, the degree of the temperature of the atmosphere, &c. The instruments afterwards passed into the hands of Geo. F. Wilson, keeper of a select school; since then all reports of the weather, and instruments also, have passed off the record.

The Rev. Mr. Haswell, of Toledo, then a popular lecturer on science, who had delivered a course the fall previous before the institute, which was well received, appeared again upon the platform. He delivered a lecture on self-improvement, which the society desired to publish. On the 11th of April, he commenced another course of six lectures on astronomy. They were delivered in the hall of the saloon building, the part occupied by the institute being reserved for the audience, while the east half was used by the speaker for his apparatus, illuminated diagrams, &c. Mr. Haswell was a very pleasant speaker, was familiar with his subject, and succeeded so well in popularising it, as to make the course very attractive, and the hall was densely filled every night. They were for the time the great lectures, and made a sensation, such as Gough and Beecher, on their peculiar topics, have made in the since greater days of our city.

The institute here began to receive lecturers from abroad. The next lecture given, was by Prof. D. J. Pinckney, of the Rock River Seminary. The number of admissions to membership largely increased, and on the night of the 25th of April twelve members were proposed, the largest proposed at any one time since the organization.

In June the subject of again leading the celebration on the 4th of July, began to be agitated—resulted in the appointment of special committees, special meetings and in a joint meeting with the citizens: the conclusion, to celebrate on a grander scale than before.

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bers of the institute. They believed that the time had come when a lot should be secured; that not many years would pass over ere such a lot would be needed; and the wisdom of thus early securing a desirable location, on favorable terms, would then be manifest. The subject was first introduced in a question for debate. It was first referred to a committee, of which Isaac Speer was chairman. Partial or informal reports were made at different times. John Gage was added to the committee. At one time a report was made in part, and the co-operation of the institute, *en masse*, was requested. There are three reports, on purchasing lots, on file among the earliest documents, two of which are without date. The first in order, probably, was, that the committee recommend the purchase of a lot "from Mr. Magee, on the south side of and fronting on the centre of the public square, on Washington street—the price not to exceed $2,000, and a credit on a part of the price." At a later date the committee considered the purchase of the lot on the southeast corner of Clark and Randolph streets, since proved to have been one of the best selections, as to value, as well as desirableness of location, that could have been made. The committee suggested the building of a hall which might be a source of income by leasing for public meetings; also, rooms suitable for schools, also in demand, while the lower story should be constructed and rented for stores. A large income, sufficient to make the enterprise desirable as an investment for the institute, was confidently counted upon, and they "reckoned not without their host." They therefore preferred this to the other selection, because of the more convenient location; it being on a corner, a "handsomer and better shaped building could be made with a small additional expense. That it would further the objects of the institute more, for it would soon be made to pay for itself." Therefore, definitely they say, "we recommend that the institute do purchase the lot on the southeast corner of Clark and Randolph streets," So reported the committee. The lot was then owned by a mechanic, who was anxious to sell it for that

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not been able to get the promise of as small a sum as fifty dollars altogether, and some of the most prominent members will not give a cent. The board cannot but deplore the existence of such a state of feeling as this—so much apathy. But as it is so, and the board having met with nothing but cold repulses in their different applications, they are under the necessity, however disagreeable to themselves, to report, that under existing circumstances to purchase a lot is absolutely impracticable."

Very soon after this an attempt was made to purchase of Mr. Chapin a lot on Randolph street, next east of the one above referred to. The plan was more full in detail as to the purchase and manner of payment, and the erection of the hall by a joint stock company; but this speedily met with the fate of the previous proposition. Frequently after, for several years, some of the most active members would urge the necessity of purchasing a lot—would go as far as to look out a favorable location—get the terms and the refusal of it for a sufficient time to lay the business before the institute, when, by the influence of the timid and over-cautious, the scheme would be quashed. The offer was made by Philo Carpenter, of a block on the west side, in a favorable location, for the small amount of $500, on condition that it should be improved by the institute—a block which now is said to be worth $100,000—and yet no steps were taken to accept of the proposition. The ground on which the hall is, which the institute now lease, was once held on terms of refusal at a price nearly nominal to its present value, and failed, like all the rest of the projects, for the want of proper appreciation of the necessity of the investment. The number of those who could see far enough into the future to feel justified in assuming the joint responsibility of such a purchase, were too small, compared with those who could be aroused efficiently to vote against the measure. We speak of these defeats, not to censure, but as a lesson, that may warn the members of to-day, of the possibility of being over-cautious of those very plans that may give them the greatest amount of vitality. There

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rooms for library and cabinet of its own, it may be true that a wise policy as clearly demands it of us to-day to secure these objects as it did of our predecessors ten and twelve years ago.

In 1843, the great measure which commanded the interest of the people of this whole region, was the completion of the Michigan and Illinois canal. Negotiations had been opened between the authorities of the state and the foreign bondholders for a further advance of funds, and the institution of measures which should insure the completion of the canal. Gov. Davis appeared here as the agent of the bondholders. The institute, at that time, Nov. 20th, passed the following resolution: "That a committee of three be appointed to wait on the governor and commissioners, and request that they would take into consideration the subject of supplying the canal with water by the power of the steam engine." The chairman appointed John Gage, Ira Miltimore and H. L. Fulton. This committee prepared a statement of the plan of raising water by steam power, applied to pumps, from the Chicago river, to the canal on the summit level, to supply the water of the canal, above the Des Plaines and other feeders. They detailed the necessity of a supply from this source, and the amount necessary to be raised, the cost of doing it, and the comparative cost of this plan, in construction and in operation, with other plans suggested. This committee had an interview with Gov. Ford, who gave them very poor encouragement, and they finally addressed a letter to Gov. Davis, the commissioner representing the side of the bondholders, and they received but little more favor from him, as Gov. Ford refused to take any steps which looked like any approbation of the plan. A correspondence was had between the parties, as well as several interviews, and when wearied by their importunities, or won over partially to the side of reason by the practical character of the men and John Gage's patient, candid style of urging its claims, Gov. Davis, unsupported by Gov. Ford, was induced to refer the matter to his principals. The result was, that the plan was adopted, though no acknowledgment was ever after made of the source from which the suggestion came. Thus are the public indebted to the Mechanics' Institute for solving the problem, and the practical way of supply-

of the first men of our city, to be the best mechanic Chicago has produced. The report of this committee, their estimates of the plan, and their correspondence on the subject, are now on file, and are documents which, on some other occasion, should require further notice.

In January, 1844, Dr. Blaney gave his first lecture on chemistry. The reports of different officers, made in January of this year, were full, having transactions of importance for their subject matter. The addition of members increased more rapidly than ever before. We are compelled to pass over the transactions of the institute of a later date more rapidly. We see from the subjects which occupied its attention, that it was fast becoming an association of importance in this community. The library was rapidly increasing. Lectures were kept up constantly. Besides a full course, continued for many weeks, on chemistry, by Dr. Blaney, Dr. Tindale also gave a course of lectures in the spring, on astronomy.

At the annual election, held on the 9th of January, the following officers were elected: President, John Gage; vice presidents, William H. Kennicott, Azel Peck; recording secretary, John B. Weir; corresponding secretary, Isaac Speer; treasurer, Elijah Smith; librarian, C. M. Gray; directors, I. L. Milliken, William Blair, Mr. Barns, Geo. F. Foster, Asa F. Bradley, and J. E. Brown. John Gage declining, Geo. F. Foster was elected president at the next meeting.

The officers elected for 1845 were—president, S. D. Childs; 1st vice president, H. L. Fulton; 2d vice president, Jason Gurley; recording secretary, S. S. Foster; corresponding secretary, Z. Eastman; treasurer, Wm. Blair; librarian, J. E. Brown; directors, C. M. Gray, I. Speer, I. L. Milliken, J. Meeker, A. Bent, S. Johnson.

The officers for 1846 were—president, H. L. Fulton; vice presidents, I. L. Milliken, A. F. Bradley; recording secretary, S. S. Foster; corresponding secretary, Z. Eastman; treasurer, Isaac Speer; librarian, Wm. H. Stacey; directors, Elihu Granger, Robert H. Foss, Robert Sheppard, Ira Miltimore, Wm. H. Kennicott, N. S. Cushing.

Officers for 1847—president, I. L. Milliken; vice presidents, S.

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Officers for 1848—president, Azel Peck; vice presidents, S. J. Lowe, A. Bent; recording secretary, S. S. Foster; corresponding secretary, John E. Wheeler; treasurer, I. Speer; librarian, Oliver Jagger; directors, Sanford Johnson, C. M. Gray, Peter Graff, H. H. Husted, A. D. Gibbons, Geo. R. Sloat.

Officers for 1849—president, Edward Burling; vice presidents, R. H. Foss, R. Sheppard; recording secretary, A. D. Taylor; corresponding secretary, Geo. Davis; treasurer, Isaac Speer; librarian, O. Jagger; directors, P. Graff, H. H. Husted, Wm. Anderson, P. L. Updike, A. J. Penny, I. L. Milliken.

Officers for 1850—president, W. H. Kennicott; vice presidents, T. Speer, A. Smith; recording secretary, A. D. Taylor; corresponding secretary, A. Dutch; treasurer, I Speer; librarian, A. D. Taylor; directors, Wm. Anderson, B. Bailey, G. R. Sloat, S. D. Childs, J. Harrison, John Sollett.

Officers for 1851—president, H. H. Husted; vice presidents, A. Bent, J. C. Outhet; recording secretary, A. D. Taylor; corresponding secretary, G. R. Sloat; treasurer, I. Speer; librarian, A. D. Taylor; directors, H. L. Fulton, A. C. Wood, Edward Burling, H. Wilson, E. Granger, S. T. Hinckley.

Officers for 1852—president, G. R. Sloat; vice presidents, Wm. H. Kennicott, Geo. W. Snow; recording secretary, A. D. Taylor; corresponding secretary, S. D. Childs; treasurer, Isaac Speer; librarian, A. D. Taylor; directors, H. H. Husted, James Curtiss, J. A. Kennicott, B. C. Welch, F. E. Deming, H. L. Fulton.

Officers for 1853—president, Robert H. Foss; vice presidents, Peter Page, Ives Scoville; recording secretary, Geo. P. Hansen; corresponding secretary, E. McArthur; treasurer, Isaac Speer; librarian, Geo. P. Hansen; directors, James Hollingworth, A. L. Calvert, John C. Rue, Stephen Derr, Lewis Dodge, G. P. Hansen.

Officers for 1854—president, Peter Graff; vice presidents, J. F. Jillson, E. Granger; recording secretary, Lewis Dodge; cor-

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Childs, L. H. Waterhouse, H. W. Zimmerman, N. Mason, I. L. Milliken.

Officers for 1856—president, Geo. P. Hansen; vice presidents, Thomas Speer, I. L. Milliken; recording secretary, U. Gregory; corresponding secretary, Z. Eastman; treasurer, Isaac Speer; librarian, U. Gregory; board of directors, N. S. Cushing, S. D. Childs, Lewis Dodge, Z. Eastman, U. Gregory, R. E. Moss.

The officers elected at the annual meeting, January last, for the current year (1857) were as follows: President, Geo. P. Hansen; vice presidents, Thomas Speer, Sanford Johnson; recording secretary, Lewis Dodge; corresponding secretary, Z. Eastman; treasurer, Isaac Speer; librarian, Z. Eastman; board of directors, Bennet Bailey, N. S. Cushing, S. D. Childs, Lewis Dodge, Z. Eastman, Geo. Schneider.

The first fair of the institute was held in 1847, in Geo. Smith's brick block, west of the South Market Hall. It was very much of an experiment, and probably tested the enterprise of its managers, as much as any succeeding fair. At that time the city, or this part of the state, had but little matured mechanical skill to put on exhibition. We well remember the anxiety of the board less their exhibition should prove a failure. Their success in "drumming up" for articles for exhibition—goods imported from the east, and on sale by the merchants, and other traders of Chicago, really saved the credit of the exhibition—and it was admitted after that, that Chicago could hold a mechanical fair. The contrast of this first exhibition, nine years ago, with the magnificent show of the past year, is but one of the sure marks, defining the progress of the city of Chicago, in mechanics, fine arts, &c., as well as in wealth and population. Fairs have been held annually since that time, with the exception of one year, postponed on account of the cholera, and in 1855 suspended to give place to the fair of the state agricultural society, invited to Chicago by the Mechanics' Institute. Since that first attempt, the fair has been

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claims set forth here? The M'Cormick reaper, the Manny reaper and mower, which gained the summit of their glory in reaping the fields of the world at London and Paris, have been well started on their career, by the impulses of the fairs of the Chicago Mechanics' Institute. Here, as was remarked in your "Transactions" of last year, was shown the first model of Atkin's reaper, a machine that has no competition from the other unrivaled inventions above mentioned, for it has as emphatically *raked* those fields which the others have reaped.

By an arrangement effected between the managers, both of the state agricultural society and the Mechanics' Institute, on the acceptance of the invitation by the former to hold their fair in this city, the state society were to be guaranteed from all the expense of fitting up the grounds for the exhibition, &c., the expense being borne by subscriptions from the citizens. The institute was to receive all the avails from this subscription, and the sale of the appurtenances of the fair grounds, after the close of the exhibition. The proceeds of this arrangement inuring to the institute, amounting to about $1,500. After paying the incidental expenses for the year 1855, there were remaining in the treasury about one thousand dollars, which the board of 1856 wisely voted to appropriate to an enlargement of the library. The number of books in the library at that time was about 1,500 volumes. During the year 1856, previous to the annual fair, about 1,500 volumes more were added, by purchase and donation.

In preparation for holding the eighth annual fair of the institute (that of 1856) early in the summer, the board of directors issued a pamphlet containing an address to the public, and rules and regulations for its government. The pamphlet was widely distributed in Chicago and the country thereabout. The time fixed for the opening of the fair was on the 7th of October—to continue to the 15th—and the grounds opened for the reception of articles on the 1st of October. The secretary of the institute, had been requested by the board to act as special agent for the preparatory arrangements, and was active for several months previous in the procuring of funds, (which were liberally subscribed by our citizens,) and in interesting the members in the coming exhibition. George P.

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porary building, 168 feet long by 60 feet wide, under the direction of Lewis Dodge, with the necessary offices, sheds, &c., for the heavier articles on exhibition. The building was admirably adapted for the purpose, and although estimated to be large enough for any possible emergency, was, nevertheless, found to be much too strait for the accommodation of exhibitors, or the comfort of visitors.

On the evening of the 7th, the exhibition was opened by an excellent address by Rev. W. G. Howard, D. D., Chicago, an abstract of which was printed with the annual report. Hon. C. B. Denio, of Galena, was to deliver the address at the close of the fair, which invitation was accepted, but as the speaker was unavoidably detained away from the city, the public were disappointed in not hearing this eloquent representative of the mechanical classes. It is to be regretted that the weather, for a part of the time, was disagreeable, which interrupted the rush of visitors to the exhibition; yet, on the whole, and particularly on all the fine evenings, the number of visitors was very large, showing a great degree of interest on the part of the public.

The exhibition was universally admitted to be large beyond expectation, and of high order, creditable to the industry and genius of our city. In the departments of fine arts, and ladies' work, the display was large, and the specimens superior, particularly in fine arts, in which department the official report did not do ample justice. The report is published, making a pamphlet of seventy-six (76) pages. The awards were made and reported on a principle not heretofore adopted, but one which we hope in time may be more satisfactory to exhibitors. The reports of committees contain descriptions of the articles, with their claims and merits, in an expressed opinion, more full than can be defined by the awards of first, second and third premiums. The diploma is made the first premium in all cases, and the proper expression of merit—and the award of medals, or books, &c.—is made from some incidental circumstance, that seemed to make a special notice desirable—such as excellence in an apprentice, or a youth—or under difficult circumstances—or the invention of a rare and

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an excellent organ of Chicago manufacture, machines for perforating postage stamps, dredging, cutting fellies, and manufacturing sash, blinds, &c. The display of agricultural implements was large, embracing the standard reaping and mowing machines which have gained their reputation and hold their place at every exhibition.

Though established for the especial benefit of the mechanics of Chicago, the exhibitions of the institute have been open to the products of the field and garden, and, with the exception of domestic animals, to all objects usually shown at the fairs of agricultural societies; and we have the testimony of those who are good judges, beyond those made judges by the association, that in several of these departments our shows have been creditable.

The contributions to the late fair, especially by the Messrs. Gage & Drake, of the Tremont House, who raise vegetables for their own table, would have done no discredit to the best horticultural society of the Union; and even in the much neglected department of natural history, our show was said to be superior to that of the state society; for in addition to the admirably mounted case of birds, shown by Mr. Henry Cutmore, and the collection of William Key, &c., Mr. Robert Kennicott, of this county, presented about two thousand named specimens, illustrating the zoology and botany of the state.

The report made at the annual meeting, in January, shows that the institute has enjoyed great prosperity during the last year. It has received in funds from fair, fair subscriptions, members' dues and initiation fees,..... $9,380
And has expended altogether, principally outlays for library, printing and fair expenses,..... 7,977

Leaving in the treasury,..... $1,303

The number of books in the library have increased the past year and a half from 1,500 to 4,000 to 5,000 volumes. The library is

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encouragement from all parts of the state. The catalogue, which will contain the plan of the organization of the library, will soon be printed, and will cheerfully be forwarded to any gentleman, in any part of the state, who may feel interested enough in the subject to request it.

Among the valuable and rare works in the department of reference, we may mention the British Annual Register, from 1758 to 1808; Niles' Register; Congressional Globe, nearly completed; Congressional and State Papers, from 1842, completed; and all books printed by vote of congress since that time; Little's Living Age; Hunt's Merchants' Magazine; the foreign reviews; the literary and scientific periodicals of the day, many of them complete from the first; a large collection of scientific and mechanical works—some of them London editions—such as Pugin's Gothic Architecture; Warrington's History of Stained Glass; with certain works rarely to be met with, and the collation and preservation of which is a great public benefit.

The institute has in contemplation the support of a free school for mechanics, for their education in drawing, mathematics, engineering, book-keeping, &c.; the opening of an extensive reading room, to be sustained by the entire exchange list of a popular magazine, to which it has given its encouragement; the making of the rooms of the institute a general depository of mechanical curiosities, and a place of public resort of all who are identified in the great mechanical interests of the west. The erection of a building for hall, library rooms, cabinet, &c., is a subject which already engages the attention of its friends, and must very soon have its fulfillment. *The full development of the Chicago Mechanics' Institute, in all the plans and purposes embraced in the liberal terms of its charter, is a matter of great and immediate importance to the state and the northwestern states.*

We would close our article by inviting the mechanics in all our large towns to organize institutes among themselves on the plan of our organization. The officers will be able to render them suggestions and assistance in preparing the way. These associations throughout the state will be of inestimable advantage to the me-

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CRAWFORD COUNTY.

Eds. Prairie Farmer—Inclosed you will find minutes of a meeting to organize an agricultural society in Crawford county, sent you for publication. We have taken hold of this matter in earnest, and are determined to achieve a triumph. If your business men would take a correct view of their interest, and tap this portion of the Wabash valley with a railroad, they would receive incalculable benefits from the trade which it would open to your city.

Hoping to be a colaborer in the work of agricultural reform, I remain,

Yours, truly,

E. CALLAHAN,

Corresponding Secretary County Society.

Hutsonville, March 12th, 1856.

Pursuant to a call, a large number of the citizens of Crawford county met at Robinson, on the 8th March, 1856, for the purpose of forming a county agricultural society, the object of which should be to advance the industrial interests of the county in all its departments. Isaac Wilkin, esq., was called to the chair, and J. R. Whitaker, was chosen secretary *pro tem.* The object of the meeting was briefly stated by W. H. Sterrett, esq. On motion of Samuel Park, the following resolution was adopted:

Resolved, That all persons feeling an interest in the objects of this meeting are invited to participate in its deliberations.

The form of constitution recommended by the state society was adopted, the annual meeting of the society to be held at Robinson.

On motion of E. Callahan, a committee of three was appointed to report permanent officers for the society. The committee reported as follows:

President—Samuel Park.

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The president, in a brief address, returned his thanks to the society for the trust reposed in him, and earnestly appealed to each member to sustain him in the discharge of his duties by engaging heartily in the work, and laboring to advance, in every possible way, the interests of the society.

The following resolution was adopted:

Resolved, That the minutes of this meeting be sent to the Prairie Farmer, at Chicago, the Illinoisan and Telegraph, at Marshall, and Banner, at Lawrenceville, for publication.

On motion, the meeting adjourned to meet at Robinson, March 18th, at 10 o'clock A. M.

ISAAC WILKIN, *Chairman.*

J. R. WHITAKER, *Sec'y.*

From the official list of awards, published in the Ruralist, we learn that a very satisfactory fair was held at Robinson, September 23d and 24th, 1856.

DE KALB COUNTY.

CORTLAND STATION, *De Kalb County*,
12*th mo.* 10*th*, 1856.

DR. KENNICOTT:

Dear Sir—Being fearful that our county might be entirely unrepresented in the forthcoming volume of Transactions, I propose to say a few words respecting it—indulging the hope, however, that communications from abler pens than mine may supercede the necessity of putting this in print. If there is nothing in it of sufficient interest to be embodied in the work, I shall not be disappointed. Do with it as thee pleases.

An agricultural society was in existence, in this county, several years ago, which held two annual fairs, and then died for the want of energy and skill in its direction and management, and not for want of material to make a good show, for we have plenty of that. We hope, however, soon to reinstate it.

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sloughs yield good grass for mowing, and the knolls yield gravel for making roads, sand for mortar and small stones for stoning wells, and so far as has been tried, they produce good crops of wheat.

There are several extensive groves of timber, sufficient, if it could be distributed, to furnish every farm with a supply of fire-wood forever, if economically managed. At a distance from the groves fences are usually made of boards.

A few Maclura hedges are growing—the oldest four years growth, from setting of plants—some of which are a complete fence. The severity of last winter killed down to about the point where it should have been cut, but did no damage.

The Hawthorndean and Keswick Codlin apple, seven years in orchard and in bearing, were killed by the winter. The Boston Russet was unharmed, and bore a crop of fruit this year. The May Duke was the only cherry that survived. Eight varieties of Heart and Bigarrean were killed.

Wheat, oats and corn are the staple productions for export. Wheat takes the pre-eminence. The varieties raised are the Rio Grande and Canada Club. The yield, this year, according to report of threshers, was about twenty-five bushels per acre, and quality good.

There is a new variety, lately introduced, called the Mountain Rose, which yielded, last year, only a little short of sixty (60) bushels from one acre. This year it yielded several bushels more than the two varieties above named. The kernel is very large and handsome; of a bright golden color. Considerable of it will be sown next spring. Oats and corn do well.

The Chicago and Dixon railroad runs across this county a lit-north of the centre, and on it are several flourishing villages. The Chicago and Burlington railroad runs across the south east corner of the county. Sycamore is the county seat, and is a flour-

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with them, which will probably tend to soften the rigor of our winters.

Black walnut and butternut do extremely well on the prairie. The seeds should be buried in the fall and planted out in the spring about as thick as corn, one seed in a place. With as much attention as we usually give to our corn fields, they will grow from 12 to 18 inches the first year, and 3 to 4 feet the second year. It is better to plant the seeds where they are wanted to grow than to transplant, for transplanting stunts the trees very much, and is very laborious on account of the extreme length of the tap root. S. W. ARNOLD.

EDGAR COUNTY AGRICULTURAL SOCIETY.

This society was organized on the 4th day of June, 1854, and was incorporated by act of the legislature on the 15th day of February, 1855. It has held three annual fairs, the first in the October following its organization. The interest taken in these fairs by the citizens of the county has greatly increased with each succeeding one, and they have well represented the industry and enterprise which exists in our midst. As indicating what branches of agriculture or other industrial pursuits our people seem mostly to cultivate and encourage, I give below the number of entries made in each class at our several fairs:

Class.	1854.	1855.	1856.
Cattle,	61	54	73
Horses,	97	93	123
Jacks and mules,	12	7	8
Sheep,	9	...	4
Hogs,	9	10	15
Poultry,	10	9	24
Textile fabrics,	124	83	158
Farming implements,	22	13	12
Mechanical department,	25	32	32
Farm products,	20	44	56
Fruit,	11	12	6

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The stock exhibited at all of our fairs has been very fine. A large proportion of the cattle were thorough-bred. Our farmers are taking a great deal of pains in improving their breed of cattle. Much fine stock has been brought into our county from Kentucky within the last two or three years. The number of horses entered at our last fair was unusually large. Some fine stallions were exhibited, among them a draught horse, owned in the county, which took the premium at the state fair. But the brood mares attracted especial attention. A much finer lot, it was said by competent judges, was brought on to the ground than was exhibited at the state fair at Alton.

In the mechanical department our fairs have not shown much to boast of, until the last year, when some very fine specimens of mechanical skill were exhibited. What our mechanics can do is proven by the fact that a wagon, put up at a shop in Paris, received the first premium at the last state fair, and that another, manufactured at a different shop, and which received a diploma and premium at our county fair, was awarded a diploma at the great Mississippi valley fair, held last fall at St. Louis. The first was manufactured at the shop of M. Morgan—the second at that of L. Odenbaugh.

The society has offered very liberal premiums at all its fairs. Some five hundred dollars were offered last year, the most of which amount was awarded and paid.

We have purchased a piece of land, containing eleven acres, for fair grounds, upon which some permanent improvements have been made. The society is still somewhat in debt for this land. With this debt paid off it would be in a very prosperous condition.

At the annual meeting, held on the first Saturday of December last, the following persons were elected officers for the ensuing year:

President—Col. A. Baldwin.

Vice Presidents—Thomas McCord, Thomas Marks, James C. Clark, David Stewart, and H. A. Conkey.

Corresponding Secretary—Dr. John Ten Brook.

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It may be proper to state here, as showing the position of our county in agricultural matters, that our prairie farmers are, many of them, pretty large land owners, and devote a great deal of attention to raising of cattle and other stock. Corn is the principal grain raised in the county, and since the completion of our railroad a good deal is shipped off. Wheat is not a certain crop, and not much is raised. Considerable attention has been paid to the cultivation of good fruit, and there are several nurseries in the county, the principal one being that of Mr. B. O. Curtis, who has kept on hand the best varieties of the apple, peach and pear. The peach trees were mostly killed last winter, and many apple trees in the prairie. Our farmers have suffered much from drouth from the last year, which has led to the consideration of the propriety of boring for artesian wells. As this is a matter in which a large portion of the state is interested with ourselves, it is hoped it will receive the attention of the state board.

SHERIDAN P. READ, *Rec. Sec'y.*

FULTON COUNTY.

Secretary—J. H. Stipp.

No other information in regard to the society of rich old Fulton is before the editor.

GALLATIN COUNTY.

There was a fair held, at Equality, in 1856, but we have no particulars in regard to it, or the names of officers of the society.

HANCOCK COUNTY.

Editors Prairie Farmer—The county of Hancock, in the state of Illinois, last year formed an agricultural society and held a fair.

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HENDERSON COUNTY.

T. H. Rice, of Oquawka, writes to the Prairie Farmer, that "the second annual fair was held at this place, was well attended, and harmony and general satisfaction were apparent. The show of horses was good." This was in 1856.

HENRY COUNTY.

We have information of the existence of this society; and that ten acres of ground, near Cambridge, had been contracted for by the society.

JO DAVIESS COUNTY.

Eds. Prairie Farmer—At your request I forward the following information relative to the organization of our county agricultural society:

The "Jo Daviess County Agricultural Society" was organized October 16th, 1855.

President—S. S. Brown.

Vice Presidents—H. S. Townsend, A. Edgerton, jr., J. Finley.

Corresponding Secretary—W. W. Huntington.

Recording Secretary—R. S. Norris.

Treasurer—John I. Smith.

The county has purchased ten acres of ground, at a cost of one thousand dollars, one and a half miles from our city, for the use of this society. We are now fencing and filling up the same for our first annual fair, to be held September 23d, 24th and 25th,

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KENDALL COUNTY.

The officers of this society for the year 1854 were—

President—A. K. Wheeler.

Corresponding Secretary—W. M. Sweetland.

Recording Secretary—J. J. Cole.

Treasurer—Asahel Newton.

The fair was held at Bristol, and the numerous attendance showed an increased interest in the affairs of the society. An address was made by John W. Mason, esq.

The officers for the year 1855 were—

President—Wm. Thurber.

Vice Presidents—James B. Lowry, W. H. Williams.

Corresponding Secretary—W. M. Sweetland.

Recording Secretary—Daniel Haigh.

Treasurer—John K. Le Baron.

The fair was held at Oswego, on the 3d and 4th days of October, and was remarkably successful. The number of horses and colts exhibited was seventy, and the entries of cattle thirty-four. The number of sheep was not large, but those exhibited were very fine. The ladies' department was quite full, and added much to the interest of the exhibition.

Several other societies holding meetings at Oswego on the same day, and the Odd Fellows parading in full costume, with an excellent band of music, caused the attendance at the fair to be very large, and it was one of the most animated and joyous days the county has seen.

The officers for the year 1856 were—

President—Wm. Thurber.

Vice Presidents—Lewis B. Judson, Smith G. Minckler.

Corresponding Secretary—Wm. P. Richardson.

Recording Secretary—John K. Le Baron.

Treasurer—Wm. H. Williams.

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tion a very interesting one. The large number of horses entered or a premium in this county shows the great interest which is felt n the improvement of this noble animal. The attendance at this fair, as at the preceding, was quite large, and the receipts each year are much greater than the expenditure.

JNO. K. LE BARON, *Secretary.*

KANE COUNTY.

The list of officers below is all we have from the Kane county society, except the address of Mr. Bragdon, which, though it well fills our pages, cannot well excuse the neglect of the officers of the society to report progress.

President—S. W. Curtis, Geneva.

Vice President—Henry Sherman, Elgin.

Executive Committee—A. C. Gibson, Aurora; Wm. P. West, Blackberry; Thomas Judd, S. Grove; Spaulding Eddy, Champton; John S. Lee, Plato.

Treasurer—Charles Patten, Geneva.

Secretary—James Herrington, Geneva.

ADDRESS OF C. D. BRAGDON,

DELIVERED BEFORE THE KANE COUNTY AGRICULTURAL SOCIETY, SEPTEMBER, 1856.

Ladies and Gentlemen—Swift says, "*invention* is the talent of youth, and *judgment*, of age; so that our judgment grows harder to please when we have fewer things to offer it. This goes through the whole commerce of life." I confess I am placed in a peculiar position to-day—one of no small responsibility, to myself as well as to you. All that Swift says *may* be true; but I trust I shall rely less on my inventive power, and more on your appreciation of common sense.

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blow among you some straws of thought, not by a gas explosion, but with the pure air of sincerity. Catch at these straws like drowning men, for I fear I can save you with nothing else.

Discarding, then, all other languages, I choose

> "———The ENGLISH, aptest tongue to paint
> A sage or dunce, a villain or a saint;
> To spur the slothful, counsel the distressed;
> To lash the oppressor, and to soothe the oppressed;
> To lend fantastic humor freest scope
> To marshal all his laughter-loving troop;
> Give pathos power, and fancy lightest wings,
> And wit his merriest whims and keenest stings."

It would be superfluous for me to review our history as a state, or trace the path of progress and the innovations made upon the "good old way" our fathers trod. That such innovations have been made, is self-evident. The features, soil and climate of this newly founded empire demanded a new system. Our ancestors felled forests, burned brush and chopped cord wood in the east. They were compelled to do this. Would you not have done it? But where are your forests? where the brush? and how would it gladden you to see cord wood!

The discovery and settlement of these natural meadows, capable of unlimited production, when cultivated, placed you in a different position. You had obstacles to overcome, difficulties to encounter. But they were of a different class. You were virtually forced from the old track. New systems were to be sought out and adopted. A different class of necessities compelled this course. I say you were *forced* out of the beaten track. New associations and novel necessities germinated new thoughts, and changed the character of your acts. "*Things* breed thoughts" and give them tone. In a new country these thoughts assume a tangible form—the *form* is moulded by the *wants* of the thinker; hence your progress. You have far outstripped the east. Your commencement, so far as the physical character of the country is concerned, was a century in advance of their present condition. If you want proof of this, allow me to ask you to contrast the wild, unbroken prairies with the boulder-bolstered and boulder-burdened farms of the east, whose settlement [illegible] to the revolution.

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tiful harmony evident between the people that populate them and the prairies. We wanted a *clear sweep*—elbow room—and we have got it. We wanted surface, where we could realize our ideal of improved farms, with implements and machinery to correspond; where mind should predominate over muscle, and ideas, developed and perfected, should plow, sow, plant, cut, gather, thresh and clean, independent of physical effort, and only controlled and directed by the will. *We have got it!* and are we not rapidly approaching the realization of all our dreams? We have seed sowers, planters, mowers and reapers, threshers and cleaners. "Plowboys" will soon be a remembrance—an old time name. We *are to have* STEAM PLOWS. I may refer here to the offer of Hon. Bronson Murray. The hordes of men of genius and invention who are riding their hobbies in squadrons down upon Mr. Murray attest that something will result from the publication of this *want* in the west. Let us hope that the projector may not fall a martyr to his presumption in rousing such a fire from this battery of inventive, flying artillery

What lack we yet? Each day reveals a new want—a vacancy for the exercise of invention. There is no end to improvement—no limit to progress. Let me be understood. This is scarcely the beginning of the end. But I am not here to speculate of the future. It is the present duty we have to perform, our present position to examine. We bear relations to each other and the world which should be examined. We have a manifest destiny. What is or shall be its character? We have the power to decide this question. How shall it be decided? How can we best promote our own interests, perpetuate all that is worth preserving, and impress the future rightly with a character worthy of our time and name? I will not undertake to answer this question, but allow one whose name is reverenced and memory-honored, and whose wisdom is acknowledged by us all, to point to the path. Here it is:

"Promote, as an object of primary importance, institutions for the general diffusion of knowledge. In proportion as the structure of a government gives force to public opinion, it should be enlightened."—GEORGE WASHINGTON.

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But what has agriculture to do with education? What fitness is there in such a theme for an address before an agricultural society? We are not pedagogues; we do not propose to become such. True; but you are EDUCATORS, nevertheless. The ideas germinating in your minds are to live and be handed down to generations following you. Future mind is to be cast in a mould of your own construction. Are you satisfied with the position your sons and daughters are assuming? Are you seeking to secure for them, with true paternal solicitude, what you have most felt the want of yourselves? To whom do you owe your position? To those who educated you. Uneducated, you could not plow a furrow; unenlightened, you would not know the difference between a hoe and a broom. True, we have an instinctive knowledge, and while we may discover the difference in construction, we could apply neither the hoe nor the broom to its appropriate use instinctively.

But, you say, common sense would teach a man that. True, again. But that same common sense is very scarce among the uneducated—a rare article, anyhow. Allow me to relate an incident, illustrating this point. Some of you may have seen it, as it was published in one of my letters to the Prairie Farmer, last summer. It shows that common sense is not altogether common. There are side hills in Virginia—mountain sides; some of these are cultivated. These side hills have been plowed with an implement peculiar to the Old Dominion, called a "coulter," or with a different one, resembling our shovel plow, for half a century. Only within the past few years have Yankee humbugs been tolerated there.

A wealthy planter in one of the western counties—a man who knew more of politics than plows, as do most southerners—had *heard* of a side hill plow; heard there was such an institution, which was a great improvement on the old coulter or shovel plow, and resolved to have one—ordered it of a manufacturer in one of the large cities in that state, who forwarded him one at once, with an extra point attached by a string.

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"Nothing new, only we're having mighty hot weather up there —parching up our grain right smartly."

"Won't injure crops much, will it?"

"I'm afeard so—mine are 'done brown' now—pretty much used up, I tell you."

[I may say, here, that the ordinary depth of soil stirred is from 2½ to 3 inches with the shovel plow or coulter; hence, it is not surprising crops should be 'done brown' long before they have matured.]

"O, how did that plow work I sent you? You got it, didn't you?"

"Yes, it came safe, but I've done brought it back—there 'tis, in my wagon."

"Brought it back! Why, what's the matter with it? have you broke it, or didn't it work?"

"I hain't plowed a furrow with it—don't know but it's good enough."

"Why did you order it, then, if you didn't want it?"

"But I *did* want it, but I'll be dogged if I could use it."

"Why not?"

"Why, you know there was a piece tied to it with a string?"

"Yes; what of that?"

"Why, *I'll be dogged if I could find any place where it would fit!* I concluded there was something wrong about it, but hadn't time to come to town and find out, and so laid it by and used the old shovel plow. But *what is that for, anyway?* it's a mighty awkward piece."

The dealer had lost his gravity, and there was a "mighty awkward" pause.

"Why, that was an extra point which I sent you, and tied it to the plow to prevent loss."

"An extra point!"

"Certainly."

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"Well, well, I am a right smart fool, any way, don't you think so, stranger?"

"I havn't said you were a fool."

"No, no, but don't you mention this transaction," and the planter didn't unload the plow, but started home pondering—a wiser, perhaps a better man.

Remember, I am responsible for this. It is literally true.

Now, this man had some kind of common sense, but he had not been *educated*—or had not acquired this particular *kind* of common sense which would have enabled him to cut the string, lay aside the extra point and use his plow.

Now, don't charge it, altogether, to the existence of slavery in Virginia—thus evading the issue—but to the *want of a proper education.* The existence of the "peculiar institution" may be the cause of this deficiency or want.

Parallel illustrations of this want of common sense could doubtless be found, even in Illinois—perhaps in Kane county.

There is no limit to acquirement. Of all people, we should not be satisfied with small attainments.

It is *not* a small or trifling accomplishment to plow a furrow properly—to fit a field for the seeding—to adapt the treatment to the wants of the soil—to know what fertilizers are required and how to apply them.

No thoughtful farmer, but in his communings with himself and nature, has acknowledged his own incapacity—has felt the want of a key with which to unlock the mystery—wished for the power to strip off the veil which hides from the untutored mind the commonest laws of natural science and open to his vision the line which connects cause and effect.

"This is a great age"—a "great country"—and "we are a great people"—are expressions every day heard. True, we are smiled upon and richly blessed by Heaven. Light, liberty and religion are ours—blessings to enjoy and appreciate—secured to us by a Divine Will—inherited from a Heavenly Father. But what

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> "These stars, this furniture, this cast of Heaven,
> If but reported we had ne'er believed;
> But our eyes tell us the romance is true"

We have but to compare—

> "These domes, whose crumbling arch and column
> Attest the feebleness of mortal hands,"

With—

> "That fane most catholic and solemn, which God hath planned,
> With that cathedral boundless as our wonder,
> Whose quenchless lamps the sun and moon supply—
> Its choir the wind and waves—its organ thunder—
> Its dome the sky,"

And we shall be humbled—shall realize our own weakness—shall wonder at our temerity and egotism. But we need not look above to see mirrored our ignorance and imbecility. We may find ample field for study and contrast on this footstool of Almighty Power.

I said I should blow among you some *straws*. Trifles—straws—make character. A word, a sound, a pebble, a sprig, a flower, a *straw*, may turn the channel of thought, and change the destiny of the thinker.

I need not bring instances to prove this; for all who have read history, or watched the uprising of genius, know it. How small a thing will produce a great effect! (I make no allusion to the straws I am scattering.) A touch of the swallow's wing, in the centre of a pond, and it ripples to its circumference. A word—be it of good or evil—spoken before a child, makes a corresponding impression, which lasts a lifetime. A little word—straw-like—yet an immortal spirit's destiny is affected by it.

But allow me to trace this analogy further. We are *like straw*. There *is* an analogy. The farmer philosopher may have discovered it.

First the blade, then the stalk—the head in blossom. As the stalk yellows the kernels mature—ripen. Once ripe, the straw is brittle—is cut down and threshed. The kernel sown, springs again into life! The straw is tread upon and decays—is dust!

Infancy—the blade—the green leaf! Youth—the head protrudes and kernels are formed from the blossom. Manhood—the kernel matures—the intellect ripens. Old age—the woody mat-

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mortal. The kernel sown again springs into new life! So of the immortal part.

It is necessary, however, to protect and guard the straw, and by feeding aid its growth; for without straw, no kernel. The body is the spirit's dwelling place. Shield and guard it well. Cultivate its growth—not an overgrowth, else the grain will not ripen—the intellect will not mature—but feed with those fertilizers which, while a fine growth of straw is secured, also insure a full, round, ripe kernel. Keep the proportion which nature and the voice of God requires. So feed the mind and body. Not with adulterated guano, for it poisons and weakens both straw and grain, but with the pure Peruvian—not with vile and poisonous drugs, and the mental poison which is found at every corner, but with the pure beverage of nature, and the rich, and once applied enriching, precepts of the bible.

The plant retains all the properties of earth and air coming within its reach, which are to increase its growth. It possesses this power, and if not furnished with the proper proportion of these requisites for its sustenance, it sickens. So we can reject or receive—receive such principles and theories as shall aid in our mental and moral development—adopt such examples as shall be worthy of imitation, and reject any and every thing which would tend to embarrass the mind's maturing.

We must progress, mentally, physically and morally, as a people; progress socially, and in all our enterprises, or retrograde. The moment the straw ceases growing, it begins to decay. The elements which constitute its life have left it; the kernel becomes harder, and of less value, unless revived.

But we must not let this "kernel of the west" ripen prematurely. It is capable of unlimited development. Who would not see, and labor to see, the special interests of the agriculturists of the west developed in all the magnificent proportions which our position and available resources warrant.

It can be done—it *must* be done. It is true there are straws in the way, of greater or less magnitude, in proportion as the strength of our inclination is to the strength of our will. It takes but a straw to start some men down the glassy inclination. The

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Now, fellow farmers, what straws prevent the founding here of a great social empire, upon an imperishable basis—a basis of intelligence and morality. You may say it *is* founded. Very well. What hinders its development. Why not proceed to rear the superstructure. Why not commence to quarry the blocks with which to rear and proportion it? It can only be done by effort—well directed and persevering effort. To become great, we must become good. In this relation the two words are synonymous. No one can be eminently good without intelligence. Hence, the stepping stone to greatness is intelligence. Hence, too, the importance of a spontaneous and energetic effort on the part of the rural population of our state to diffuse knowledge. Your own interests are most subserved by such an effort.

I need not point out the pecuniary benefit resulting from the erection of substantial and tasteful school buildings—need not remind you of the enhanced value of real estate where such improvements are made. All this you realize. These institutions form the nucleus of good society. They are the magnets which attract intelligence and load stones to retain it.

It is not alone the knowledge of the composition of plants—of the difference between the organic and inorganic parts—the proportion and relation of the elements—which compose them; or of the different constitituents which compose a sandy, clayey, loamy, calcareous or peaty soil; or being well versed in the science of manures—understanding the laws of evaporation, leaching, and the preventives of this waste of fertilizers; or the most approved mode of cultivation, drainage, plowing, mulching, &c., &c.; or the simplest or most important laws of mechanics, hydraulics or hydrostatics, light and heat, or the laws which govern the common phenomena of the atmosphere—it is not alone this knowledge you should be satisfied with, or the want of it which retards your progress—which clogs the wheels and neutralizes the effort. These are important wants, however. This is a great deficiency in our

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upon knowledge derived from an actual demonstration—a demonstration of principles which are universal, and which may be communicated to and learned by the youth, and recognized by him in early manhood, when he first steps upon the field of active life. It has been by observation, study and experience that these treasures we would have hoarded by the young have been secured. They are capable of demonstration. LET THEM BE DEMONSTRATED! What others have spent a lifetime to obtain, we can grasp by reaching for it. I say farmers have *felt* the want of this kind of knowledge, and I need not urge its diffusion.

But it is not this alone that is wanted to elevate us to the position we assume it to be the duty of the farmer to aspire to—to strive for. Nature's noblemen should not only converse with nature, listen to and understand her teachings, and apply them to practice; but we sustain social relations which should be cultivated in the highest degree. In proportion as two minds are enlightened, in just such proportion is their mutual enjoyment increased, when together. I am no advocate of this refinement which ignores labor and degrades the laborer—which brands as plebeian him who is honestly struggling to obtain a livelihood.

I can *grasp* that man's hand with a *cordial gripe*, who, in addition to a highly cultivated mind, has a HEART to appreciate all that is worthy, in the ignorant and poor, and encourage the efforts of the poverty stricken to rise.

There is no real social refinement without a base of moral excellence. Knowledge, unless tempered by virtue, and controlled by principle, is a curse to the possessor. It adds intensity to wrong, craftiness to crime, rapacity to desire, and vindictiveness to hate. If we were to progress in morals and virtue as we progress in knowledge, we should have more reason to watch for the millennium than we have now. If we were to expend more time and money in the cultivation of mind, and less in ministering to our sensual desires, and imaginary wants, there would be more reason in our aspirations, and more hope in our efforts to obtain political distinction—the presidency, for instance. It is true,

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I am reminded here of a paragraph I saw the other day, illustrating this class.

A lady of wealth put her daughter, who had been pampered by indolence, under the tuition of a governess. Upon calling to inquire how her daughter progressed with her studies, she was told "not very well."

"Why, what is the reason?"

"She wants capacity."

"Well, you know I don't regard expenses; YOU MUST PURCHASE HER ONE IMMEDIATELY."

Thank God! capacity can't be purchased. Knowledge cannot be bought. Virtue cannot be bartered for. As the mind is above matter, so are all these qualities and virtues above price.

Education is the best capital you can give your son; and a good character and continued honesty and morality is the best insurance of success.

There is not a man of you but indorses this. At least your best judgment teaches it. But are you laboring to start him in life with such a capital? Do you build school houses and churches, employ ministers and well qualified teachers? Do you visit your own district school—interest yourselves in the progress and comfort of the scholar—encourage the teacher by your influence and an exhibition of the interest you have in the advancement of the pupils, and the sympathy you should accord him in the performance of his duties?

The mind and body should be educated simultaneously—the kernel is dependent for its quality and perfections upon the healthy growth of the straw which sustains it. So is the mind dependent upon the body. A law of nature broken, and the mind and body both pay the penalty.

A healthy mind cannot exist in connexion with a diseased body. Hence, I am in favor of model farms, or model mechanic shops in connexion with our literary institutions. To be sure, this is a proposition which requires time and study to perfect and make practicable. But it must and will be done. There is field enough

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your own—to urge that you have an eye to these objects of primary importance in your future course.

You will soon have to employ teachers for the winter schools. This is a work of not a little responsibility. It should not be performed thoughtlessly, or by men whose only thought will be, "can I have him cheap." You would give more wheat for a purse of gold than for a purse of brass—so you should be willing to remunerate for real worth and capacity, above the glittering yet senseless, brazen-faced and brainless imps, who only teach "to pass away time."

As you love your country, desire its prosperity, and would cherish all that is worth preserving of its institutions, I beseech you not to separate, or to regard as distinct, the agricultural and educational interests of your community. The *country*, the farm and mechanic shops furnish the MEN with BACKBONE in them for our country's service now.

How much more important then, that we do not retrograde in this respect—that when our empire becomes extended, as we see the promise of extension in the enterprise and intelligence of our race—when the glorious old thirteen shall have become the nucleus of a system only limited in extent by the waters which wash the borders of our continent, and unlimited in influence—that then we may be found prepared with mental calibre to defend, moral ballast to trim, and knowledge to direct the "SHIP OF STATE."

Perhaps it may not be inappropriate, or be deemed impertinent for me to say a word to the women of Kane county. Now, I believe women are legitimately entitled to certain *rights*. I believe those rights are only limited by the capacity to exercise them. So of men. They (the women) have great responsibilities. Talk about the responsibility of man! Mothers have the *twig* to bend. Then the responsibility of the *inclination* rests with them. The mother and teacher sustain similar relations to the child. The mother moulds mind—has the power to control its action a lifetime. But how are the girls, (that is *vulgar* now,) or young ladies, if you please, educated?

They are placed at schools, where, as Saxe truthfully writes, they

——— "In spite of wish or taste,

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Reluctant music from a tortured box;
Here taught, in inky shades and rigid lines,
To perpetrate equivocal designs;
Drawings that prove their title plainly true,
By showing nature 'drawn' and quartered too!"

But it was not so once:

"In ancient times I've heard my grandam tell
Young maids were taught to read and write and spell;
(Neglected arts! once learned by rigid rules
As prime essentials of the common schools,)
Well taught beside in many a useful art
To mend the manners and improve the heart;
Nor yet unskilled to turn the busy wheel,
To ply the shuttle, and to twirl the reel,
Could thrifty tasks with cheerful grace pursue,
Themselves accomplished, and their duties too.
Of tongues each maiden had but *one*, 'tis said,
Enough 'twas thought to serve a *lady's* head."

Now, I am not prepared to assume the responsibility to decide to which of the above classes the Kane county girls belong.

I have no desire to decide. The accomplishments of a modern young lady are, as a rule, so far above those of modern young men, that we gain nothing by instituting a comparison. Cards, cigars, bad liquor, billiards, racing, and round oaths, have no counterpart among the so-called refinements of ladies.

There are exceptions—other classes of young men, else alas for our country.

Here again the country furnishes the virtue, intelligence and constancy so rarely found among women in our cities. Hence, the importance of a thorough system of instruction in all that prepares woman to sustain the relation of wife, mother and instructor—to prepare hands, head and heart for a position of vastly more importance than any political station that could be offered her.

In an old book, too much abused, too little read, and the contents of which are often wantonly distorted, I find a description worth studying of an ideal woman, whose "price is far above ru-

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strength, and strengtheneth her arms. She perceiveth that her merchandise is good: her candle goeth not out by night. She layeth her hands to the spindle, and her hands hold the distaff. She stretcheth out her hand to the poor; yea, she reacheth forth her hands to the needy. She is not afraid of the snow, for all her household are clothed with scarlet. She maketh herself coverings of tapestry; her clothing is silk and purple. Her husband is known in the gates, where he sitteth among the elders of the land. She maketh fine linen and selleth it, and delivereth girdles unto the merchant. Strength and honor are her clothing; and she shall rejoice in time to come. She openeth her mouth with wisdom, and in her tongue is the law of kindness. She looketh well to the ways of her household, and eateth not the bread of idleness. Her children rise up and call her blessed; her husband also, and he praiseth her. Many daughters have done virtuously, but she excelleth them all. Favor is *deceitful*, and beauty is vain, but a woman that feareth the Lord, she shall be praised. Give her of the fruit of her hands, and let her works praise her in the gates."

KNOX COUNTY.

A. W. Martin writes us that the exhibition of fine cattle and horses was excellent—20 head of short horns, claimed to be thorough-bred, &c., &c. There was good feeling, "much people," and an excellent address by Prof. J. B. Turner. The society has purchased ten acres of ground as a fair ground, at a cost of $1,000. Seventy-five persons became life members, the last day of the fair, by the payment of $10 each. $700 were received at the gate from members and others. It is intended to lay out the grounds and plant trees in the spring.—*Prairie Farmer.*

LAKE COUNTY.

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Treasurer—S. M. Dowst, Waukegan.

Secretary—N. C. Geer, "

Executive Committee—James McKay, Waukegan; Harrison L. Putnam, Otsego; Thomas Reid, Waukegan; Daniel S. Putnam, Fremont Centre; O. G. Risley, Libertyville; J. C. Bloom, Port Clinton.

LA SALLE COUNTY.

A full official report, as we are assured by the president, Bronson Murray, was fowarded to Springfield, in December, 1856, but it has not reached the editor of this volume.

We incidentally learn that the society has ten acres, near the city of Ottawa, well fenced, and supplied with fixtures.

The following officers were elected for 1856, and the fair of that year is said to have been a very good one:

President—Bronson Murray.

Vice Presidents—W. H. Price, T. D. Brewster, David Strawson, Charles Van Doren, G. W. Jackson, J. K. Courtney.

Executive Committee—J. H. Hosford, John Titus, J. Lawrence, Jesse Green, W. M. True, E. Baldwin, J. P. Willard, Henry Moore, L. W. Weston.

Voted, that $50 be allowed the secretary as salary for the ensuing year.

ADDRESS OF BRONSON MURRAY, ESQ.,

BEFORE THE LA SALLE COUNTY AGRICULTURAL SOCIETY, OCTOBER 17, 1854.

Ladies and Gentlemen, Co-Workers and Members of our County Agricultural Society—It is a post of responsibility to suggest a train of thought at your annual gathering. That train may sometimes mould or wield the public opinion, that great arbiter of

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WHAT ARE THE TRUE OBJECTS OF AN AGRICULTURAL SOCIETY, AND HOW CAN THEY BE ACCOMPLISHED?

Are its objects to make great men, or great beasts; great mind, or great matter? The man who, intent upon surpassing all competitors, aims to produce the most beef in the smallest compass—who stuffs his mottled Durham till his body is a perfect cube, and who sees, in the varied premium list, only the hide which covers his beast—the man who fancies not the departments of housewifery, machinery, mineralogy, botany or the fine arts—who only tolerates them because others insist on them, and who regards the money expended upon them as lost to the society and to fat cattle—such a man we all recognize as having a faint conception of the extensive scope legitimate to agricultural associations. Yet there are others, and no small number, who seem to consider that the annual exhibition of the products of industry and skill, living and inanimate, such as we have this day beheld, covers and secures their great objects. These people canvass the quality of the show, inquire the amount of receipts, and then decide the success of the society, thinking they have seen its last results. Do not this class err as much as the former? Is it not for MAN that this and *all* agricultural societies are organized? for man, and not for matter? Are these exhibitions of your skill and handiwork anything more than evidences of *man's progress* in their peculiar line? I think they are neither more nor less than this. Are these annual gatherings, judgings and awardings anything more than bonds of union and incentives in the great enterprise of the progress of the human race? I think the true aim and objects of these societies are, or should be, THE ELEVATION OF MAN, and the dominion of mind over matter—the reaching of that goal where wood, and iron, and steel become the willing substitutes for human muscle, bone and sinew. If this be our true aim and object in these associations, is there no link unplaced in the chain of its accomplishment? Is there no great power dormant or unemployed in this great production—the production of man—whose mind shall master matter, and subject it to supply all his wants? Are your pro-

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pose. Every district of soil has *its* peculiar properties, and its fitness for peculiar crops. Every plant we cultivate has its own idiosyncrasies—its own proper and best method of cultivation. The waters of the ocean, the currents of the air and the plants of the field all have their own peculiar laws. The key to these is the power over them. For this key hundreds of men of science, all the world over, are worthily devoting their lives. But while they are thus busy, millions on millions, with eyes as good and keen, senses as clear and hearts as ardent and yearning are daily treading paths far more fruitful in opportunity, without the rudiments of that EDUCATION which fits them to discover the mysteries which perpetually court their observation. Is there a farmer who passes into his grave whose life has not been as favorable for observation as that of a Humboldt himself? From earliest dawn to latest day he has been surrounded, at every tread, by nature's mysteries of earth and air. Yet what, to the development of mind or science, are the results of his spent life? You know it is nothing. Compared with its field for usefulness, his life is thrown away. Shall we not then ask if there is not a force known to the world, but lost sight of by your constitution and by-laws, as well as by our legislature and people, for the completion of what this society is formed for—for the more perfect education of man—for the discovery of these arcana of nature, and his consequent mastery over such a missing force? I think there is. Where are your efforts for a collegiate education of your children in the line of their pursuits? Where the sources from which they may draw all the learning, already in the world, to give them a good start in the race for which you design them—to open their eyes to the observation and discovery of the things which surround them? Why! 'tis said the Chinese barbarians possess a higher standard of agriculture than any other nation that treads God's footstool. Where is our institution to collect *their* knowledge, and that of other nations, and deal it out to our children? Are you, yourselves, competent to it? Do you possess the ability? Can you collect it and

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more than any other, experiences its evils. Where, I then ask, again, is the source from which we may educate our children in their pursuits, that they, at least, may hope to excel their parents? Is it in the colleges and schools already established? Are these fitted to *your* trades—to fill *your* wants? You have answered this question by the encouragement you have given them. Got up to promote sectarian purposes—controlled by the trustiest sectarian partisans—would you look to them to advance the working-man's learning so much as the preacher's—the sectarian's? If you did, you would be disappointed. They teach literature, language and abstract science. They are fitted for the education of the talkers of society—for the clergy and the bar—but not for the workers on earth, and wood, and metal. These men require something more than history, figures and acids. For the truth of this assertion I appeal to history. Books, mathematics, language, theology, and, to a great degree, chemistry, have been possessed by the world for many centuries. Classical colleges and universities begin to measure their ages with Methusalah, yet the giant of progress, in the conveniences of life, is of tender years. Look back on England, two hundred years. Seneca had, centuries before, presented the world a theory of morals, only surpassed by that of the christian, and the christian faith was already sixteen centuries old. Living England contained a Johnson, a Swift and a Bacon. Religious, moral, literary and scientific knowledge were then and there in abundance, and were good. Yet something more was needed to produce the superiority of present civilization. The railway and the steamboat, the march of nations over new continents, the production of millions of implements, then unknown, and all subservient to the wants of man, required some other power than that of bare learning and a theory of morals, however perfect, to effect them. Only two hundred years ago, what comforts could the laboring man of England possess? His day's work produced 18 cents; his year's work, $18; a woman's, $8; and for a rod of ditching, he got five cents; while on the other hand, a pewter dish, to hold his Sunday joint, cost $1 80; a pair of stockings, 33 cents; and his Sunday boots, $2 25. Thirty

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houses, and scarcely any inclosed field. Deer, as free as any in an American forest, wandered there by thousands. The wild bull, with his white mane, was still to be found in a few of the southern forests. The wild cats were frequently heard by night, wailing around the lodges of the rangers. The wheat, which was cultivated only on the strongest clay, and consumed only by those who were in easy circumstances, was estimated at less than sixteen millions of bushels. Neither the modern dray horse nor the modern race horse were then known. Two men, whose authority on such subjects was held in great esteem, pronounced that the meanest hack ever imported from Tangier would produce a finer progeny than could be expected from the best sire of the native breed. The tin of Cornwall, which had, more than two thousand years before, attracted the Tyrian sails, was still one of the most valuable productions of the island, yet yielded only about 1,600 tons, or one-third of what it now is. The veins of copper, which now yield near 1,500 tons, were then unworked, and not reckoned in the value of property. The mines of coal, and salt, and iron were almost disregarded, and the two latter viewed with an unfavorable eye by both government and people, because of their consumption of wood."

The state of the roads is one of the best evidences of civilization. How true that "of all the inventions, the alphabet and printing alone excepted, those inventions which abridge distance, have done the most for the civilization of our species." Our railroads to-day are the best friends of the working community, and of no portion greater than of the farmer. By their aid his farm becomes the environs of the city. From them he derives wealth and practical lessons of punctuality, industry and promptness in dealing. In these, how far we are this day superior to England then! Macaulay says, "on the best lines of communication the ruts were deep, the descents precipitous and the way often such as it was hardly possible to distinguish it, in the dark, from the uninclosed heath, and the fern which lay on both sides. It was only in fine weather that the whole breadth of the road was available for wheeled vehicles. Often the mud lay deep on the right and left, and only a narrow track of firm ground rose above the

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out of the slough. People traveled with six horses, because with a smaller number there was great danger of sticking fast in the mire." The freight on goods was about 30 cents per ton a mile, or fifteen times what it now is here by railroad, if measured by money, and one hundred times as much measured by labor. "On by-roads, and generally north of York and west of Exeter, goods were carried by long trains of pack horses." The road tax on every laboring man was six days in every year. Such were the highways of England two hundred years ago! Compare them with the railroads of Illinois to-day! Her domestic comforts were similar. A successful merchant or mechanic of the present day enjoys luxuries unknown to the princes of that. The streets of London did not then dream of lighting of any sort, and rencountres and assassinations by night were of no unfrequent occurrence. Contrast this with our most moderate villages enjoying the comfort of gas. Where lies the cause of this vast difference—England then and now? Not in the advance of theology, literature, science or morals. No! For this *material* progress we must look to the hand of the artisan, to his superior skill, to the advance in the education of labor, to the application of science, intelligence and skill, to industrious, continuous labor. Morals, peace and science may open the way for this progress, but they cannot effect it. Machinery in endless profusion, and the substitution of iron and steel for the strained muscles of men, are the results of their influence only when applied to the *hands of the artisan*. From these hands in turn spring both relief to the laborer from incessant toil, and opportunity for mental improvement. Fellow laborers! are not *these* the true consummations to be sought by your society? Fellow laborers! you have seen the state of England two hundred years ago, and you know what it is now. You know the cause which has produced the change. Shall we be content to walk in the comparatively weary path of the past, or shall we seize additional appliances for progress? Shall we allow the teachings of history to fall unimproved on our minds, or shall we profit by their instructions? Shall the rays of science be left to their own slow penetration to reach the hand of

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dies of men? It is by education of some sort that *all* intelligent men propose to accomplish progress. It is by education of an appropriate kind that each profession seeks to advance and prepare its youth for their life duties. Shall farmers and mechanics failt o do the same? Shall we, alone, of all the classes of society, not seek out a system of education adapted to our pursuits? Shall we, alone, be content with the cast off clothing of the other professions? What are the educational processes through which the prospective farmer passes? A few weeks or months, by winter, at school, before he reaches twelve, or perhaps none before and a few afterwards; a learning in literature, bounded by the correct writing of his own name, and the simple rules of arithmetic. Deprived of that education in the application of his thinking powers to which he is entitled, and in which his parents should feel an interest to perfect him, he becomes an easy prey to every species of imposture. An axeman on a railroad, as ignorant as himself, but somewhat more crafty, dissatisfied that his daily dollar is not received for Sunday, as well as the other six, leaves his employment, boils sarsaparilla in molasses and pursuades him it is a panacea for all ills—prepared by a son of Esculapius. A cunning intriguer, a shrewd judge of his kind, by aid of caucus and other machinations, foists himself upon the shoulders of party, and dupes the honest soul to work and fight to place *himself* in the chair of office. A wiley schemer, bent on realizing a quarter of a million yearly out of wind and nothing, locates a bank in the deserts of Africa—unapproachable, save through the sirocco and pestilential fevers, persuades him that lampblack and tissue paper are the most desirable articles of exchange for his produce; that personal responsibility and ultimate security, with "generous confidence," united, make "promises" better than coin itself, and the poor soul wonders at last if trade itself would exist, if by any unfortunate interference of Providence, the owner of the Bank of Green Gammon should die, and be unable any longer to furnish a circulating medium for Illinois. His farm is apace with his credulity. His plow is fashioned from one disentombed in the pyramids of Egypt —or as near it as some shrewd vender of notions can find in his stock. His harrow is formed from the crotch of a tree. His ground is scratched over to the depth of an inch, or possibly

tryman, a peasant, a rustic, a plowman, a clown—*hence*, one who is rude in manners, illiterate." No flatterer, my friends, is Webster. Such has for ages been, and such to a good degree still is the reputation of the tiller of the soil for intelligence. The mechanic, better in reputation, but conscious that it exceeds his earning, daily runs against the outside fence which hedges in his knowledge—and the world is poorer for his deficiency. Oh! how much poorer.

My friends! These are the teachings of our own observation and judgment—teachings which suggest themselves at every step —that we need education for the head and the hand of the producer. Yet there are men, unwilling to rely on the judgment which God has given them, ever seeking for "precedent," "PRECEDENT"—fearing or crying, "the thing is, and must be absurd," "impracticable and visionary"—because they know of no *precedent!* They know of no agricultural college, or industrial university in the little earth in which *they* have lived, and are boisterous to proclaim. They oppose, just as Macaulay tells us: "There were fools in that age (1690) who opposed the introduction of lighting the streets of London as strenuously as the fools in our age have opposed the introduction of vaccination and railroads—as strenuously as the fools of an age, anterior to the dawn of history, doubtless opposed the introduction of the plow and of alphabetical writing."

These men never heard of the colleges of Europe for the education of the engineer, the geologist, the farrier and the farmer! They never read of that great depository of practical science, the polytechnic school of France! Never of the naval school of Annapolis; the military academy at West Point; the farm school for orphans, at Boston, and the reform school on Randall's Island, New York—all institutions where the teachings are those of science and practice, and of science applied to practical purposes. Then it is said, perhaps, by some sir oracle, "I fear the idea of a *university*, where our working classes may all learn the sciences that bear upon their professions and see them applied is an insti-

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sustained as it would be by the state pride and patriotism, it would far outstrip those colleges of the land, designed, as I have already stated, and so little esteemed by or interesting to the masses of the people. I do not wonder that one among the best and oldest of these latter, Columbia college, in the city of New York, though possessing a productive property worth a million of dollars, and supporting a full corps of professors, has but 120 students within her walls. Hers is a common instance. Were she a well arranged agricultural college, in Illinois, would she share the same fate? The Farmer's college of Ohio, almost without endowment, has between 300 and 400 students.

Well, you say, what shall we do? How shall we begin? Our means are moderate. I know it. You have $150,000 given to the state to establish an university and a high seminary of learning. With this money establish a state institution, intended ultimately to cover the entire area of human knowledge. Let it commence by being the fount from which our common schools may draw their full supply of teachers. In due time it can be enlarged. There would be, then—

First—A normal school department;

Second—A department of practical and scientific agriculture;

Third—A department for practical and scientific mechanics;

Fourth—A commercial department.

The normal shool schould be designed to qualify teachers to instruct in all matters pertaining to the predominant interests, the peculiar wants and circumstances of the people of this state.

For the efficiency of the agricultural department, lands should be provided for the purposes of agricultural experiments, and for a model farm.

The land set apart for experimental purposes—the experimental farm—not expected to pay its expenses, but be as all ordinary educational appliances are, costly. There should be a field in which all kinds of agricultural experiments could be tried and systematically reported, for the benefit of the entire farming class, and contribute to our agricultural literature. The *model*

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at, should be made. The model field should be supplied only with the necessary means for conducting it in the most truly economical manner, commencing it on a limited scale and extending it as experience will justify.

The mechanical department should be furnished with all needful apparatus and contrivances for the complete practical elucidation of the various sciences pertaining to the pursuits of the mechanical classes. There should be constructed a building for a depository of all kinds of tools, implements, machines and models for purposes of experiment, and such as are presented to the institution by inventors or donors, thus constituting a depository for the benefit of students and all such as wish to visit the institution for any useful purpose connected therewith.

To those already named other departments in science and literature should be added, as future means shall justify.

The accomplishment is easy, and rests with the people. The fund to start it is in the hands of the treasurer of the state, as his last report will show. It cannot, nor can its interest, be applied to any other object, without a violation of trust, than erecting an university or college. Shall that institution be of the character of the present colleges, and come in competition with them in their inability to excite the agricultural interest, and commence first with the languages and follow, successively, with the law, theology, medicine allipathy, medicine homœpathy, the art of war, &c., as has one at least of the universities of other states; or shall it begin with the education of farmers and mechanics—those who constitute the largest portion—and when *they* are attended to, proceed to education of the less?

Gentlemen and ladies: The county of Stephenson, by her active exertion in behalf of this university cause, secured it the friendship of the speaker of the house in the last legislature. His influence saved it from the vandal hands of some men in that body, who condemn and destroy every thing that inures not to their personal benefit. It is before the people now, and will be before the legislature at its next session. Should not the influence of this society be cast for it? That influence may secure for it immediate success—a success, I truly believe, involving the interests of our race through centuries of coming time. Remember, I pray

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ly but earnestly to impress upon you, that no means are left unused by your society which may tend to make the men of our country men of a noble mould.

LAWRENCE COUNTY.

LAWRENCEVILLE, *March* 12, 1855.

DEAR SIR—At a meeting of the executive committee of the Lawrence County Agricultural Society, held at the court house, in Lawrenceville, on the 10th instant, the following resolution passed unanimously, viz:

Resolved, That the president of this society be requested to write to the corresponding secretary of the state agricultural society, respectfully requesting the officers of said society to appoint some convenient place in Southern Illinois for holding their next annual fair.

In obedience to the request in the above resolution, I have the pleasure of forwarding the same, to which I may add, that it expresses not only the desires of the board that passed it, but the wishes of all the energetic, practical farmers in this county.

I am, sir, yours, very respectfully,

JOHN SEED,

Pres't Lawrence County Agricultural Society.

JOHN A. KENNICOTT,

Cor. Sec'y agricultural society, state of Illinois.

Besides the official document above, we copy the following:

REPORT FROM LAWRENCE COUNTY.

Eds. Prairie Farmer—About twelve months ago the farmers of old Lawrence met in the court house and organized an agricultural society. Although we had rather faint encouragement, we held a county fair, which did honor to the cause, and was the means of giving renewed energy to the friends of the society. It is a new thing to the most of us, yet if we persevere, I think we shall be able to compete successfully with any county in the state.

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Wheat harvest is just over; and though the wheat stood rather badly, and the drought caused the straw to be short, still we shall have nearly an average crop. The grain is very large and plump. Oats and tame grass will also be light on account of the dry weather, but corn bids fair to do well, and give a first rate crop. Some of it is now beginning to tassel. We shall have a good supply of apples—all other fruit injured by the severe winter, though we shall have a few peaches; cherries are now ripe.

Our county fair for this year will be held on the 10th and 11th of October, on the grounds of the society, near Lawrenceville, the county seat, and we would be happy to see persons from all parts of the state. Our officers are:

President—John Seed.

Vice Presidents—James Thompson, Thos. Buchanan and W. B. Leach.

Treasurer—A. G. Kinkade.

Secretary—L. Abernethy.

Our premiums are small at present, but we hope, ere long, to offer greater inducements to competitors. We are having our fair ground fenced, and next year we think of putting up suitable buildings. I will send you our premium list as soon as published.

A. G. KINKADE.

Lawrenceville, June 30th, 1856.

From another correspondent of the Prairie Farmer, we learn that the fair for 1856 "was well attended, and a great improvement on the first." The society owns the grounds, (which were donated,) and has paid for the fencing. The officers for 1857 are, according to this writer—

President—John Seed.

Vice Presidents—James Thompson, James M. McLean, Samuel Gillespie.

Corresponding Secretary—Daniel S. Gold.

Recording Secretary—S. Abernethy.

Treasurer—Albert G. Kinkade.

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LEE COUNTY.

The Lee County Agricultural Society was organized February 6th, 1854.

President—Oliver Everett.

Vice Presidents—Abram Brown, Lorenzo Wood, Hiram Perry, John K. Robinson, D. Wasson, A. R. Whitney, Wm. R. Harris, Wm. Long, Thomas Fessenden, Edwin W. Starks.

Treasurer—Jacob Bodine.

Secretary—J. T. Little.

Its first annual fair was held at Dixon, on the 18th, 19th and 20th October, 1854. The members of the society have taken but little interest in the fair; the general disposition seemed to be to let it go by default. A few of the officers and members, however, got together, and determined to have a show of some kind, and make a commencement for a fair for 1855. The result was a very fair "show," and a determination to have a fair in 1855 worthy of the county. There were 10 premiums awarded on horses, 3 on cattle, 5 on agricultural products, 8 on horticultural products, 2 on poultry, and 24 on miscellaneous and discretionary articles.

The second fair of the county was held at Dixon, October 3d, 4th and 5th, 1855. The attendance was good, and the entries, in some departments, quite numerous. There were 11 premiums awarded on cattle, 36 on horses and mules, 9 on sheep, 4 on swine, 6 on farm implements, 15 on grain, vegetables, &c., 7 on domestic manufactures, 2 on ornamental needlework, 3 on fruit, 17 on flowers, 4 on paintings, &c., 7 on stoves, 23 on miscellaneous and discretionary articles.

The farmers and others who had interested themselves in the progress of the society and its fair felt much encouraged and well repaid for the time and labor they had spent at the fair.

The third annual fair of the society was held at Franklin, on the 8th, 9th and 10th of October, 1856. The Hon. M. L. Dun-

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manufactures, 9 on ornamental needlework, 3 on daguerreotypes, &c., 14 on miscellaneous and discretionary articles.

The officers elect for 1857 are—

President—J. B. Wyman, esq., of Amboy.

Vice Presidents—A. E. Wilcox, Edwin Pomeroy, Evans Adrian, A. R. Whitney, J. W. Hollenbeck, F. Anderson, Joseph Hodges, Geo. E. Haskell, S. S. Stevenson, Jacob Condeman, John Lawrence, J. F. Linton and H. Fuller.

Treasurer—Lorenzo Wood.

Secretary—Josiah Little, of Amboy.

The above is a sketch furnished by J. T. Little, of Dixon, the old secretary of the society, and though not so full as we had reason to expect, gives a good idea of the doings of the society.

LIVINGSTON COUNTY.

This society was organized in January, 1856, and the following officers were then elected:

President—W. J. Murphy.

Vice Presidents—M. D. Edgington, S. McCormick, C. B. Ostrander.

Secretary—Otis Richardson.

Corresponding Secretary—Jas. Stout.

Treasurer—James M. Perry.

From the excellent constitution adopted, the sections which follow are copied:

"Sec. 9. No person shall be an officer of this society, other than treasurer, unless he shall be, at the time of his election, or for a period not less than three years, at some time previously, actively engaged in some of the pursuits whose interest it is the object of this society to foster, and (as far as practicable in the opinion of the executive committee) the same restriction shall apply to the selection of the orator to deliver the annual address.

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MACON COUNTY.

President—H. C. Johns.
Vice Presidents—Joseph D. Wykel and Wm. Rea.
Corresponding Secretary—Wm. J. Usrey.
Recording Secretary—J. P. Boyd.—*Prairie Farmer.*

MADISON COUNTY.

It is well known that this county has an agricultural society in successful operation. There is also a respectable horticultural society, at Alton, but we are not in possession of material for a particular notice of either. It is recollected that at our state fair, at Alton, both of these associations were spoken of, by citizens of note, as having done much good; and the last county fair was said to have been a very good one.

MARION COUNTY.

The second annual fair of the Marion County Agricultural Society was held on the 25th and 26th days of September, (1856?) at Salem. The attendance was large, and the exhibition, as a whole, gave cheering evidence of a greatly increased interest in the subjects of improved agriculture and the mechanic arts.

The departments of cattle and horses presented, to any one familiar with such exhibitions, strong proof of the admirable adaptation of Southern Illinois to the raising of those kinds of stock.

But little attention has heretofore been paid to improving the breeds of cattle, either by judicious crossing, or by the importation of animals from abroad; and yet there were many specimens exhibiting superior size and symmetry.

Our mild climate and good, nutritious, mature grasses render an abundant supply of food, for seven months each year, to all animals running at large on our prairies and in our groves, quite a matter of course. It is a well attested fact, that domestic animals, after a few generations, adapt themselves, in size and development, to the regular supplies of food, they are accustomed to

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of food, year after year, is most abundant and regular. For this reason our ordinary cattle show a development of carcass not attained in more rigorous climates and on poorer soils, except by much more care and much greater comparative cost.

A few thorough-bred Durham cattle have lately been introduced, and these, by their crosses upon our native stock, will, in a few years, give us a stock for the shambles rarely excelled anywhere. We look upon this as a fixed fact, only awaiting time for its demonstration.

The departments of mechanics and horticulture presented nothing remarkable, although they were tolerably well filled.

The cultivation of fruit is receiving much more attention than formerly, and peaches flourish with almost fabled luxuriance.

Officers of the society:

President—C. W. Webster.

Recording Secretary—D. T. Parker.

Corresponding Secretary—John P. Reynolds, jr.

MASON COUNTY.

HAVANA, MASON COUNTY, ILLINOIS,
December 16, 1856.

DR. JOHN A. KENNICOTT,

Cor. Sec'y Ill. State Agr'l Society:

DEAR SIR—In accordance with your request for information from county agricultural societies, I herewith send you the biennial report of this society.

Our society was organized January 14th, 1854, but from some cause or other there was no fair or cattle show held that year.

The second election of officers was held at the court house, in Havana, April 4th, 1855, with the following result:

President—Wm. Allen, Havana.

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The executive committee met at their rooms, on the 14th of April following, and resolved to hold a county fair, on the 4th and 5th of October, at some place, hereafter to be agreed upon; and two committees, consisting of three each, were appointed to canvass the county, to select a place for holding the fair at, and solicit subscriptions for fitting up the same. The committees reported unanimously in favor of holding the fair at Havana, together with a subscription list, amounting to one hundred and fifty-nine dollars, subscribed by the citizens of Havana, for fitting up the fair grounds.

At a general meeting of the society, held on the 2d day of June, the executive committee were instructed to purchase five acres of land, in the corporate limits of Havana, and to fit up the same for holding our first fair. The committee carried out the wishes of the members, by purchasing five acres of land and erecting a tight board fence on two sides of it; the other two sides were inclosed by a rail fence, and as they laid back from the main road, it answered every purpose. Our fair was held on the 4th and 5th October, and was a very creditable affair to all engaged in it. The show of horses was very good in point of quality; the number on exhibition was forty. In cattle, the number was small—only fifteen. There were some good hogs, but no sheep; neither were there any farm implements on exhibition. But in the female department there was a grand display of both the useful and ornamental. The vegetable department could not have been beat by any exhibition of the kind in the state. The address was delivered by L. W. Ross, esq., of Lewistown, Fulton county, and was pronounced by them that heard it, very good.

The third annual meeting of the society was at the court house, in Havana, on the first Wednesday in January, 1856. The treasurer made the following report of receipts and expenses for the year 1855:

Receipts ending January 1st, '56,.....	$357 25
Disbursements for the same time,.....	224 18
Balance on hand,.....	$133 07

Our constitution was then amended, increasing members' fees to one dollar, and one dollar annually. The time for the election of officers of the society was changed from the first Wednesday in

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President—J. D. W. Bowman.

Vice Presidents—Col. A. T. West, John Bowser, Wm. Hibbard.

Recording Secretary—Jno. Covington.

Corresponding Secretary—H. C. McIntire.

Treasurer—A. D. Hopping.

On motion of H. C. McIntire, Wm. Allen, J. M. Fisk and J. D. W. Bowman were appointed a committee to wait upon the county court and solicit a donation to aid the agricultural society to pay for its land, and to improve the same.

The recording secretary was instructed to procure a desk and book case, for the use of the society.

The executive committee elect appointed the second Saturday in March for their first meeting.

The executive committee met at the appointed time.

The committee appointed to wait upon the county court, reported that the county court had donated the sum of two hundred ($200) dollars for the use and benefit of the Mason County Agricultural Society.

The committee resolved that the second annual fair of the society should be held on the 17th, 18th and 19th of September, and that the sum of four hundred ($400) dollars be appropriated for premiums.

During the summer we succeeded in getting the other two sides of our land inclosed with a board fence. The fence is seven feet high, and is made of pine boards and oak posts. The land inside of the fence is four acres and a half.

The second annual fair was held at the advertised time; but it was not as large an exhibition as was anticipated by the executive committee and the friends of the society. Several reasons were assigned for it, especially that it was too busy a time with the farmers—they were not done sowing their wheat, and would not

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the exception of fruit. The past winter killed nearly all the fruit in this county, and a large portion of our fruit trees.

Immediately after the distribution of premiums, the society went into an election of officers for the ensuing year, (1857) with the following result:

President—A. D. Hopping.

Vice Presidents—Jas. Blakley, A. Biggs, W. P. Campbell.

Recording Secretary—J. M. Fisk.

Corresponding Secretary—H. C. McIntire.

Treasurer—Jas. H. Hale.

The treasurer made the following report of his office receipts for the year, together with the amount on hand at the commencement of the year,..... $877 48
Expenditures for the year,..... 784 26

Leaving a balance on hand,..... $93 22

The condition of our society may be stated in the following words: In the past two years we have held two fairs; purchased five acres of land, and inclosed the same, with a good fence; paid all our debts, and have very near a hundred dollars left to go on.

Very respectfully,
Your obedient servant,
H. C. McINTIRE,
Cor. Sec. M. C. Agr'l Society.

McDONOUGH COUNTY.

By way of communication, (for the officers appear willing to keep it secret,) let me say that McDonough county has got a very good agricultural society, formed in April, 1855. Held a very good fair 18th and 19th of October succeeding.

Present officers are—

President—T. Chandler.

Vice Presidents—S. K. Pedrick, Col. Bailey, and N. Updegraph.

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Adopted the inclosure and ticket system—had $150 left in treasury, after paying all premiums and expenses.

JOSEPH LOWNES.

McHENRY COUNTY.

This society is, doubtless, still in existence, but we can find no recent notice of its fairs.

MERCER COUNTY.

For the year 1855, (the second year of this society,) the officers were as follows, viz:

President—Dudley Willits.

Vice Presidents—Graham Lee, W. Wolfe, and James Haverfield.

Corresponding Secretary—J. H. Frego.

Recording Secretary—T. McWhorter.

Treasurer—Martin Bear.

By frequent meetings of the executive committee and the earnest and active efforts of the friends of the society, full preparations were made for the annual exhibition, which took place at Millersburg, on the 2d and 3d days of October. By the adoption of a system of entries more perfect than any known to exist in societies with which we are acquainted, the business of receiving animals and articles, as well as the paying of premiums, was managed rapidly and free from confusion and errors. The number of entries was 286, a large increase upon the previous year. The receipts from badges and tickets also showed an increase in the interest that the community feels in the enterprise, which was truly flattering to its friends.

Of the articles exhibited, the show of horses was the greatest attraction. In number and quality, they were certainly a sight worth the attention of every visitor. Not less than 150, mostly splendid animals, such as every farmer delights to look upon.

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All the other departments were well represented, especially those belonging to the ladies, to whom is to be ascribed much of the success which has attended the efforts of the society.

The address was delivered by R. H. Spicer, a brother farmer. It is to be regretted that a copy of that address is not on file in the secretary's office, that it might be embodied in this report, for it was an excellent pattern, by which future would-be orators might cut out something worth the farmer's attention.

After paying all expenses, and the premiums of the society, there was left a balance in the hands of the treasurer of some $200.

The society now owns a beautiful lot of five acres, inclosed with a high board fence, and fitted with offices, exhibition tents, &c., &c. The ground is covered in part by a thrifty growth of native trees, with suitable openings for exhibition tent, rings and stands.

On the 11th of December, 1855, the society met at Keithsburg, to organize under the statutes; having previously existed, and prospered finely without law. A new constitution was adopted, containing as few provisions as possible. The officers to consist of president, vice president, five directors, a secretary, and treasurer—the whole to constitute the executive committee. The society is satisfied that a few faithful laborers, who will constantly attend the necessary meetings of the board, are far better than small meetings of a large society.

The officers elected under the new constitution, and for the year 1856, were as follows, viz:

President—Dudley Willits.

Vice President—James Haverfield.

Board of Directors—H. E. Wright, M. A. Cook, Wm. Doak, John M. Miles and Wm. M. Hayes.

Secretary—Graham Lee.

Treasurer—W. Wolfe.

The executive committee made every preparation, and were again fully rewarded at their third annual fair, which took place

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ration, and for admitting members and entries, that everything might be in readiness for the two exhibition days that followed. The result has satisfied the committee of its expediency. Two days are enough for exhibition, but not enough for the work necessary to be done, and have everything move smoothly throughout. Nearly she same system was adopted as at the previous fair, and its working was admirable, far better than that adopted at our state fair, as far as the system of entries is concerned.

The entries for this year were greater in number and better in quality, in every department, than on any previous occasion. The attendance was greater, and of course the receipts were larger, leaving a balance in the treasury of some $300. The number of horses entered was 216, and altogether a splendid sight. The Durhams came upon the ground in larger numbers and of better quality than heretofore; showing plainly that the spirit of improvement is taking deep hold upon our farmers, and that annual exhibitions of the best have a salutary tendency. The large exhibition tent was filled to overflowing with specimens of industry and taste. The ladies did their full share of the work, and carried off their share of premiums. Nowhere can be collected a better display of fruit than was spread upon the shelves by Mr. McWhorter and others. Among the greatest attractions of the stand was a large collection of specimens, ornithological and entomological, most perfectly prepared and preserved by Wm. Crapnall, one of our farmers, who prefers this kind of amusement and relaxation to some kinds that are more objectionable in the eyes of the moralist, yet are indulged in by those calling themselves good farmers.

The annual address was delivered by M. L. Marsh, esq., another of our farmers. (The society has a chronic prejudice against orators ignorant of their subject.) In the awarding of premiums it has ever been the object of the society to make them such as would be permanently useful. They have consisted mainly of agricultural periodicals, and of books that have a direct bearing upon the article which drew them. Whether it will be expedient to continue this plan is as yet uncertain; but it is to be hoped that it will meet general approval.

From past experience, the society is encouraged to go on with her work, hoping, with every return of its annual gathering, to

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Earnestly desiring that the time may soon come when the state society shall be the head, and the various county societies the members of one body, the Mercer County Agricultural Society submits the above report.

GRAHAM LEE, *Secretary.*

J. A. KENNICOTT:

Dear Sir—At your request, I send, as an addenda to our report, the address of Mr. Spicer, and also a brief description of our plan of entries, reports, &c. The first labor comes in preparing the schedule of premiums. This is got up in very much the same shape as is common with other societies, only we divide the schedule into numbered departments, and then subdivide each department into classes, which are designated by letters. The letters are so placed as to leave room for two figures to be made between them and the article designated:

DEPARTMENT IV.—SHEEP.

A.—Best buck, fine wool,.....	Diploma.
Second best,.....	Youatt.
B.—Best buck, long wool,.....	Diploma.
Second best,.....	Youatt.
C.—Best pen of five ewes, fine wool,.....	$5

The schedule, when prepared, is printed upon large posters, and a certain number of these are kept by the secretary to cut up for judges' books, as will be explained hereafter. The next step is to prepare the entry book. This is done by taking half as many leaves of cap paper as we have classes in the department upon which we commence, and ruling them, with a narrow figure column in the centre, and at the right hand side of the leaf. As we use only one side of a leaf, it gives us but two columns of entries. Each column is headed with its class letter, and the name of the article which it represents:

A.—Best buck, fine wool.		B.—Best buck, coarse wool.	
John Brown,.....	1	.....	...
Job Reed,.....	2	.....	...
R. Smith,.....	3	.....	...

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When we have the book thus prepared, we cut and letter the

books are all made, we then make of them one book by stitching them into a stout pasteboard cover, cutting and marking the edges as we did the department book—marking upon the buff paper the numbers of the departments. We now have our entry book, with the several covers, showing the number and place of each department, and the lettered margins showing where to open to the class.

We next procure a sufficient number of colored pasteboard cards to mark all the entries. These cards have one of the class letters printed upon each. They are cut two inches long and one inch wide, with a hole punched through one end for the string by which they are attached to the articles. For convenience, we have them ranged upon a rack in the office. There must be as many letters on the cards as we have classes on our schedule. We are now ready for entries.

The secretary sits with his entry book before him; his assistant has a schedule before him, and the card rack, with a bunch of cut twine, with reach. Suppose John Brown comes to enter a fine wool buck. The assistant, glancing at his schedule, says to the secretary: "Department 4, class A, John Brown." The secretary turns to fourth department, class A, and if this is the first entry, replies: "John Brown, No. 1." The assistant, having taken from the rack a card with the letter A upon it, marks upon its back No. 1, and hands, with a bit of twine, to Mr. Brown, with directions to tie it to the entry in a conspicuous manner.

The next entry in this department and class will be marked No. 2, and so on, care being taken to have the numbers correct. In this manner entries can be made as fast as names can be written.

The judges' books are made as follows: Take a schedule and cut out a department by itself. Then cut a piece of pasteboard as long as that department, and wide enough for two columns. On the left hand side paste the department, and on the right paste the rules for the judges in that department. Now double the

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their department, they return their book to the secretary, and their labor is done; their report is made. It begins and ends with making these figures.

Before the fair the secretary has the schedule recorded upon the society's book, in the following manner:

Class.	Entry.	Premium.	To whom awarded.	When paid.
A,....	Best buck, fine wool,....	Diploma, .	Job Reed,.....	Nov. 16.
.....	Second best,.....	Youatt,...	John Brown,.....	At fair.

In entering the reports, the secretary takes the judges' book and turns to the recorded department, while the assistant turns to the entries. The secretary calls from the book A 2. The assistant answers Job Reed, his entry being No. 2. The secretary writes Reed's name in the line of first premiums, and proceeds calling and recording all the awards in the same manner. In this way the whole time of entering any article and recording the award upon the same need not occupy thirty seconds, and the work is done with certainty. Nothing is left to work upon after the fair, for it is all finished upon the ground, and, if the judges act promptly, there is time enough to pay all the premiums upon the spot.

G. LEE, *Secretary.*

EXTRACTS FROM AN ADDRESS BEFORE THE MERCER COUNTY AGRICULTURAL SOCIETY, OCTOBER 3, 1855,

By R. H. SPICER.

* * * * * * * * *

It is the products of the soil that possesses value within themselves; they sustain life; they clothe and protect us against the vicissitudes of the seasons, and they surround us with the comforts which it is the privilege of man to enjoy. It is the products of the soil, or their equivalent, that constructs and freights your railroads, the boats that float upon your rivers, and the ships that

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The merchants and the commercial classes are but the servants, to receive and market the products, or exchange them for such products or commodities of other climes as shall contribute to or promote the general comfort of man, each receiving a portion of the products of the soil as an equivalent for his services. All alike, who claim to come within the pale of civilization, are dependent upon your labors for subsistence.

Thus, then, is the magnitude of your mission apparent. You, and you alone, are the producers of all wealth. You, and you alone, bear all the burdens; you support the government in peace and in war; you bear ALL the losses, by land and by water; you, and you alone, pay *all the taxes.*

Near two and a half centuries since this fact seems to have been better appreciated than at present. Artaxerxes, a prince who possessed wisdom and sagacity not common at that period of the world, was wont to remark, upon the return of the annual festival, which it was his custom to give to the husbandmen, when king, satrap and hard-fisted yeomanry were in the enjoyment of familiar conversation, at the same table, that "the authority of princes must be defended by military forces—that forces can only be maintained by taxes—and *all taxes* must at last fall upon agriculture, and agriculture can never flourish except under the protection of justice and moderation."

If, then, the agriculturist is the parent of all, and bears the burden of all, does he hold that place socially, politically and intellectually, which his position and the interests he should represent entitle him to? Though first in numbers, and first in usefulness, is he first in the estimation of his countrymen?

It has been a settled policy, from a very early period in the history of the world, that men should be divided into two classes—the ruling few and the governed many. In the more liberal forms of government, the latter are designated as the "laboring poor;" in France, Germany, and other countries in the south of Europe, as "peasantry," and in the north as "serfs." Here they are "*sovereigns.*" Like most of their oppressed brethren in the east,

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passports to society. Why is it so? If you have the numercial strength, have you not the power, to open either the doors of legislation or the doors of society?

That you have the power of numbers cannot be doubted. But there is another power, before which numbers are powerless; a power which has, from earliest time, and which will, for all time to come, enslave your class, unless you shall be masters of it. Knowledge is power. Intellectual culture makes the man—it matters not whether he walks in the furrow, delves in the mine, or plies the hammer at the forge; if culture is there, a man is there—power is there—a power which makes the man and his calling alike respected.

Why so much indifference on the part of the tillers of the soil to provide for their own usefulness? All, or nearly all, other classes are provided with schools and colleges where they may attain such knowledge as shall fit them for the prosecution of their labors. It is a knowledge of the sciences and their application which has enabled the mechanic to accomplish the triumphs which have so much astonished the world within the present century.

There are fixed laws which govern not only the operations of art but also all the operations of nature; and a knowledge of these laws is essential for the prosecution of the labors of man with ease, certainty and success. And to none are they more essential than to those engaged in the great field of agriculture. Has the farmer any schools where a knowledge of these laws and their application to his pursuit may be attained? He has none. An indifferent knowledge of the first elements of education, such as enables him to read, but scarcely with pleasure or advantage—to write, but not with facility or accuracy, together with an ability to perform the simplest process in numbers, has heretofore been deemed sufficient for him who was destined to follow the plow. The traditions of his fathers, with their virtues and their faults, are adhered to, and they are supposed to have made his pathway luminous and clear. Is it strange that while all other arts have been making rapid progress under the guidance of a superior intelligence, agriculture, like the broken columns of Persepolis, stands where it did in the days of the Antonines?

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Justinian relates that "Abraham had been relieved by the well

"The annual power of vegetation, instead of being exhausted by two thousand harvests, was renewed and invigorated *by skillful husbandmen, rich manures and seasonable repose.*"

There is, at the present time, unquestionably, a disposition manifested for improvement, and some may suppose that improvement in this branch of industry has kept pace with others, by the introduction of labor-saving machinery. That much advantage has thus resulted to the farmer, we cannot doubt; yet it must be borne in mind that these improvements are the results of intelligence, skill and patient investigation; nor would the generous farmer be willing to rob his inestimable co-laborer—the mechanic—of the credit of his labors.

But in the science of culture—the principles of economical geology, of agricultural chemistry and of animal physiology, which have been laid open by Lyle, by Priestly, by Davy, Liebig, Johnson and Dana—which teach the affinity and adaptation of certain plants to certain soils—which teach to guard against failure by a knowledge of results, and that which teaches the true source of increased productiveness—in this, but little advance has been made.

But how is it in our own Illinois? Are we keeping pace with the advances which are progressing? I fear that in the midst of the animated scenes which surround us, and the evidences of prosperity which greet us whichever way we may turn, an intimation that such is not the case might not be well received. We are farmers—we are alike engaged in the great cause—and if we would make our calling what it should be, we must listen to wholesome truths, and in the spirit of kindness point out those errors by which we have been led astray. It is only by a knowledge of error that truth is made apparent. Recent as is our history, there is just reason to apprehend that we may be retrograding in some of the great essentials necessary to successful husbandry. We rely too much upon the native fertility of the soil; the impression has already gone abroad that with all the fertility of soil of which we boast, it does not contain the elements for the successful and continued propagation of wheat.

Is this a false report, or is it true? You have an interest in the answer which shall be given. Much of the credit of your

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to the analyzation of the soil, and ascertained what one of the elements were wanting, or what were superabundant? Who has applied his knowledge of geology and mineralogy and discovered the earth and minerals wanting? Who, like the inhabitants over whom the Ptolemies ruled, have applied "skillful husbandry, rich manures, and given seasonable repose to the lands?"

If these things have not been done, would it not be well for us to stop and ponder before we yield the palm—would it not be well for us to set our hands and our minds to work, that we may disabuse ourselves of a report so injurious, and as I believe so groundless?

It is a well established fact that the vegetable deposits which cover the surface of the earth in most new countries, are but slightly supplied with the necessary element for the production of wheat, and these are soon exhausted. Hence, the necessity in all wheat growing regions of resorting to the expedients of soiling, summer fallowing, manuring and the application of fertilizers. Want of richness with us does not exist, and it is not improbable that Providence has been as munificent in the deposit of her stores here as elsewhere, but the hand of man is necessary for their application.

First, then, I would suggest, that you contrast the width of your plows, and if possible turn up to the ameliorating influences of the atmosphere, the yellow earth, and the chances are that you will reap a rich return of the "yellow dust" as your reward.

The object of your annual assemblage is, the exhibition of products as the evidences of prosperity, and as a stimulant to exertion; also, for the comparing of notes that you may be mutually benefitted by the experience of each other. The time allotted for the exhibition is too short for the full development of all the benefits that might flow from them. In the bustle and hurry—the examination of the many objects that attract the attention and the

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tee of revision, and published in a book of Transactions. This, if properly done, would constitute a work of inestimable value. It would be properly and practically the hand work of the farmer.

It was with much pleasure that I witnessed among the many articles of attraction upon the ground at your last fair, a small but very handsome collection of natural history, prepared by the Messrs. Crapnall, who have so kindly graced your exhibition with it; also a cabinet of anatomical specimens by Dr. Ashbaugh. These are not merely objects of curiosity, but of interest and instruction, and should not only receive the proper acknowledgments, but the fostering care and encouragement of our society; as it is to be hoped that they may form the nucleus around which we should be proud to see clustered at our next fair cabinets of geological and mineralogical specimens; also, cabinets of plants and insects. They are all intimately connected with your pursuits, and form pleasing and interesting studies for all ages, and both sexes, and none within the wide range of science are better calculated to awaken the mind to usefulness and lead from nature to nature's God, than these.

Last, though not least, yet least to be expected, because most difficult to find, a *farmer's library*, if placed conspicuously upon the grounds, would be a subject of curiosity and interest. Other libraries, the doctor's and lawyer's, the merchant's and the mechanic's, have a tangible existence, and if your fair grounds should have the honor of exhibiting a library with this title, dedicated to the farmer's interest, you might with some reason flatter yourselves that a notoriety, nay, an immortality even would attach to it greater than that of the greatest battle fields "upon which heroes have trod, and man has bled."

The culture of man should be the first and greatest object of your solicitude; the culture and improvement of the animal and vegetable kingdoms follow as a consequence.

To your motto "improve," add "progress." "Progress" and "improvement"—these at present are the watch words that are thrilling the souls of millions of American freemen. Under their

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When mind thus acts upon mind, and the mass, with the cheering prospect of the future before it, is once set in motion, who shall stay its progress, or who shall say "thus far shalt thou go and no farther?"

Like the avalanche, or the mighty cataract, its course is on and onward; no power can resist it, until the dignity of labor is asserted, and man shall stand forth the acknowledged object of the design of his maker, a MAN! Until progress shall have stamped its impress upon field and upon farm—till home is relieved of its monotony by the hand of culture and care—until the life of the laboring man is made a blessing, and the name of the American farmer shall be as a beacon light to all nations."

MORGAN COUNTY.

It is a subject of mortification and regret to the editor, that from this most fertile and beautiful interior county of the state, with so many fine flocks and noble herds, and farms of world-wide renown, the extracts below should constitute the only "report" from *two* well organized associations in the same county:

MORGAN COUNTY AGRICULTURAL SOCIETY.

Eds. Prairie Farmer—The Morgan County Agricultural Society was organized September 6th, 1851. The first fair was held at Jacksonville, the 22d and 23d days of October, A. D. 1851. The officers of said society were duly elected on the 12th day of April, each year, respectively, to the present time. The present incumbents are—

President—Wm. Brown.

Vice Presidents—S. M. Rannels and Silas Massie.

Treasurer—James Green.

Secretary—Irvin Dunlap.

Directors—Ransom Vanwinkle, More Goltra, J. T. Newman.

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MORGAN COUNTY AGRICULTURAL AND MECHANICAL ASSOCIATION.

Eds. Prairie Farmer—The Morgan County Agricultural and Mechanical Association was organized November 11th, 1854. The following officers were elected for the ensuing year:

President—Stephen Dunlap.

Vice Presidents—James Green and Joseph Morton.

Treasurer—Cyrus Mathews.

Secretary—Austin Rockwell.

Trustees—William Kinman, Stephen Green, Abel Brown, George M. Chambers, Silas Massie, George Graff and Samuel Warner.

Officers for the present year the same as above, with the exception of treasurer, James Green being appointed in the place of Mr. Mathews, resigned.

This association was formed for the purpose of obtaining and fitting up a suitable place for holding our county and state fairs, should it be held in this place. The association have purchased an eligible lot, consisting of twenty acres, which they have fenced with a good tight board fence, seven feet hight; and the association intend to fix up the lot with suitable stalls and sheds for the exhibition of articles.

STEPHEN DUNLAP, *President.*

A. ROCKWELL, *Secretary.*

OGLE COUNTY.

We find no formal report from this society, but are furnished with a published list of awards at the fair in 1856. The show of horses appears to have been large; no less than twenty-five entries in one subdivision.

Of cattle, there were twelve entries of thorough-bred Durhams, six of Devons and twenty-six of grades. And of all other animals

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of having premiums awarded. This ought not to be. We labor for a common good, and have a common interest in the advancement of all the agricultural prosperity of our beloved county.

"The county of Ogle is second to none in the state in the natural advantages of fertility of the soil, healthfulness of climate, easy access to market and many other facilities, and the citizens of this county are but enhancing their own best interest when they cherish and encourage such institutions as the Ogle County Agricultural Society in their midst. May 'progression' be the watch-word of every inhabitant of our county.

CHAS. W. MURTFELDT,
Corresponding Sec'y Ogle County Agricultural Society."

The following list is believed to comprise the principal officers of the society, for the year 1856:

President—Judge Enoch Wood.

Vice President—Col. J. H. White.

Corresponding Secretary—Charles W. Murtfeldt.

Treasurer—James V. Vale.

Managers—Judge Ruggles, Fly Petrie, Dr. A. E. Hurd, Allen Woodburn, Thomas Austin.

PEORIA COUNTY.

From this society (which we were told commenced its operations in the right spirit) there is no official information whatever, nor can we find the least notice of its doings in the agricultural journals of the day.

PIKE COUNTY AGRICULTURAL FAIR.

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Treasurer—Edward Connett, Pittsfield.

Directors—John Hull, Newburg; Nathaniel Kellogg, Pittsfield; William Ward, Perry; Richard Hays, Barry; Thomas Dimmitt, Griggsville.

LIST OF PREMIUMS

Awarded by the Pike County Agricultural Society, at its fourth annual show and fair, held at Griggsville, Oct. 8th and 9th, 1856.

HORSES—Class 1.

Best stallion, 4 years old and over, 1st premium,	Edward Pickett,	$5
Second best, 4 " " 2d "	Barnett Wilsey,	3
Best stallion, 3 years old and under 4, 1st premium,	Daniel Moffitt,	4
Second best, 3 " " 4, 2d "	Thomas Simpkins,	2
Best stallion, 2 " " 3, 1st "	Andrew Hagerman,	4
Second best, 2 " " 3, 2d "	Simpson Goolman,	2
Best stallion, 1 " " 2, 1st "	Thomas Philpott,	3
Second best, 1 " " 2, 2d "	William Robinson,	2

Committee.—James Ham, H. Williams, James Hogsett, William Wade, and Elisha B. Hitt.

CLASS 2.

Best colt, 3 years old and under 4, 1st premium,	Thos. Philpott,	$4
Second best, 3 years old and under 4, 2d premium,	John Wade,	2
Best mare, 2 " " 3, 1st "	Nathan Kelly,	3
Second best, 2 " " 3, 2d "	H. R. Brown,	2
Best colt, 1 year old, 1st premium,	Daniel J. Brown,	3
Second best, 1 year old, 2d premium,	Geo. Downer,	2
Best sucking colt, 1st premium,	Peter Cooper,	2
Second best, 2d premium,	Braxton Cooper,	2
Best brood mare, colt by her side, 1st premium,	Henry H. Brown,	4
Second best, " " 2d "	Wm. A. Grimshaw,	2

Committee.—William Ward, James Shinn, J. H. Demmitt, James Morrison, William R. Wills.

CLASS 3.

Best pair draft horses, 1st premium,	Thos. Simpkins,	$4
Second best, " 2d "	Benj Bates,	2
Best pair carriage horses, 1st premium,	Brown Wade,	2
Best mare, 5 years old, 1st "	Thos. Simpkins,	4
Best " 6 " 2d "	Thos. Simpkins,	2

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JACKS AND MULES.

great service to the farming community, and upon examination, we award the first premium of four dollars, to T. Simpkins, for the best span of mules, and second premium of two dollars, to E. M. Merris, for the second best span of mules, three years old. Best two year old mule and under three, first premium to J. H. Chenowith, four dollars. Best suckling mule, first premium to J. J. Manker, three dollars. Second best sucking mule, second premium, to B. H. Atkinson, two dollars. All of which the committee would respectfully submit.

Committee.—James H. Chenowith, Perry Wells, B. F. Westlake, H. J. Williams.

CATTLE—Class 1.

Best bull 4 years old and over, 1st premium, Wm. Ward,	$5
" 3 " under 4, 1st premium, Geo. Yates,	3
Second best, 3 years old and under 4, 2d premium, A. P. Sharp,	2
Best bull, 2 " " 3, 1st " Jas. Morrison,	4
Second best, 2 " " 3, 2d " John Barney,	2
Best bull, 1 year old " 3, 1st " Thos. Dimmitt,	4
Second best, 1 " " 3, 2d " James Brown,	2
Best sucking bull calf, 1st premium, M. Riggs,	3
Second best, " 2d " Jas. Morrison,	2

Committee.—Samuel Bradbury, E. B. Hitt, John Wharton, Edward Pickett, and William R. Wills.

CLASS 2.

Best cow, 4 years old and over, 1st premium, M. Riggs, of Scott county,	$5
Second best, 4 years old and over, 2d premium, T. Simpkins,	3
Best cow, 3 " under 4, 1st premium, Thos. Simpkins,	4
Second best, 3 " " 4, 2d " R. Anderson,	2
Best heifer, 2 " " 3, 1st " Jas. Morrison,	4
Second best, 2 " " 3, 2d " Nathan Kelley,	2
Best yearling heifer, 1st premium, Robert Anderson,	4
Second best, 2d " Thomas Simpkins,	2
Best heifer calf, 1st " Nathan Kelley,	3
Second best, 2d " Thos. Simpkins,	2

The committee express a very favorable opinion of all the stock in the different grades, and state that the number exhibited was large: that there were no cows in grade of milch cows, and re-

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CLASS 3.

Best yoke of oxen,	1st	premium,	White Brown,	$4
Second best,	2d	"	George Yates,	2
Best fat steer,	1st	"	John Craven,	4

Committee.—J. K. Moore, Geo. Yates and John Bean.

SHEEP.

Best buck, 3 years old, and over, 1st premium, A. & J. Pollock,	3
Best pen 3 ewes, 2 years old, 1st premium, A. & J. Pollock,	2
Best buck, 1 year old, 1st premium, J. K. Moore,	3
Second best, 1 year old, 2d premium, D. A. Fagan,	2
Best pen 3 ewes, under 2 years old, 1st premium, D. A. Fagan,	3
Second best, under 2 years old, 2d premium, J. K. Moore,	2
Best pen ewes, under 2 years old, 2d premium, Sam'l George,	2

Committee.—John Duran, John Barney and D. A. Stanton.

HOGS.

Best boar, 1 year old and over, 1st premium, Sam'l Bradbury,	4
Second best, 1 year old and over, 2d premium, Sam'l Bradbury,	3
Best boar, 6 months old, 1st premium, Thos. Simpkins,	3
Second best, 6 months old, 2d premium, H. R. Brown,	2
Best brood sow, 1 year old, 1st premium, J. W. Brown,	4
Second best, 1 year old, 2d premium, Thos. Simpkins,	2
Best sow pig, under 1 year old, 1st premium, J. Bradbury,	3
Second best, under 1 year old, 2d premium, N. Carnes,	2

We, the committee, would respectfully say, that the stock of hogs on exhibition was the finest ever brought into our county fair—being the full blood Berkshire, Irish and Bedford cross.

Committee—Alex. Taylor, C. P. Swearengen and D. A. Fagan.

POULTRY.

Your committee, having attended to the duties assigned them, report, that they award, for the—

Best pair Chittagongs, 1st premium, A. Pellen,	$2
Second best, 2d premium, Sam'l Bradbury,	1
Best pair of any improved breeds, 1st premium, C. P. Clemmons,	2
Second best, 2d premium, J. W. Brown	1
Best lot of poultry, 1st premium, A. Pellen,	2
Second best, 2d premium, J. & A. Pollock,	1

Committee—A. Barber and N. B. Bradbury.

AGRICULTURAL INPLEMENTS.

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Best plow, 1st premium, Parmalee & Co.

Best revolving rake, 1st premium, John Little,..... $2
Best corn cultivator, 1st premium, A. Rockwell,..... 2
Best wheat cultivator, 1st premium, A. Rockwell,..... 2

Committee—L. P. Libby, A. Rockwell and O. G. Spencer.

REAPERS, DRILLS AND PLANTERS.

We, the committee on reapers, drills and planters, beg leave to report, that there being no competition, therefore offer no premiums —only one drill being on exhibition, patented by James Selby, which is worthy of examination. Also, one reaper on exhibition, a self raker, patented by Atkins, appears to be a fine machine, particularly the raking part, which works well.

Committee—Samuel P. Hodgen and Robert Anderson.

FRUIT.

The committee for the examination of fruits on exhibition at the Pike county fair, submit the following report: Your committee feel that, through want of experience in the description of and proper names of the varieties of apples, they may have done injustice to some of the fruits on exhibition. We find the number of exhibitors and the varieties much greater than at any previous fair, and the fruits very fair, indeed; fully as good, in the estimation of one of your committee, who saw both, as that on exhibition at the state fair, at Alton. There were nineteen lots on exhibition. The fruit all being very good, your committee have been governed very much in the determining the premiums by the regulations of the society under which the premiums were offered, and have endeavored to conform to those regulations, and to do justice to the exhibitors by awarding the following premiums:

Best and greatest varieties of apples for table use, 1st premium to lot No. 5, Robert F. Babcock,..... $2
Second premium, to lot No. 6, L. Bradbury,..... 1
Best 6 winter varieties, 1st premium, No. 2, Isaiah Adams,..... 2
Second premium, lot No. 12, C. Saunders,..... 1

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BUTTER AND CHEESE.

The committee on butter and cheese, &c., would respectfully report, that they have examined a cheese presented by Mr. A. F. Bill, which appears equal to any thing we have seen, and therefore is entitled to first premium, $2.

Best 5 pounds butter, 1st premium, Mrs. L. Bradbury,	$2
Second best, 2d premium, C. Simmons	1
Best loaf of bread, very fine, 1st premium, Mrs. B. Bates,	1
Best 5 pounds honey in comb, 1st premium, Isaiah Adams,	1
Best barrel of flour, very superior, 1st premium, C. Simmons,	1

Cake presented by Miss. C. J. Brown, very fine; also, another presented, which was very fine—owners name not known.

Committee—H. A. Miles, S. P. Hodgen and A. Hill.

GRAIN AND VEGETABLES.

Best bushel of wheat, 1st premium, Thomas Rogers,	$1
Best " corn, in the ear, 1st premium, C. Saunders,	1
Best variety of corn, 1st premium, D. A. Fagan,	1
Best Irish potatoes, " " S. F. Hill,	1
Best sweet " " " Thos. Bradbury,	1
Best turnips, " " "	1
Best beets, " " "	1
Best carrots, only one sample, 1st premium, Thos. Bradbury,	1
Best cabbage, 1st premium, James Temple,	1
Best pumpkins, 1st " S. F. Hill,	1
Best squashes, " " C. Saunders,	1
Best variety of garden seeds, 1st premium, Austin Barber,	1

Committee—John Harvey, Isaiah Adams, Samuel George, Samuel McCune, Thos. Bates.

HOUSEHOLD MANUFACTURES.

We, the undersigned, committee on household manufactures, certify that we have examined the various articles coming under this head, and, after a careful examination, we award the premiums as follows:

Best woolen blankets, 1st preminm, Mrs. D. Aldrich,	$2
Second premium, J. Sigsworth,	1
Best 10 yards of flannel, 1st premium, C. R. Williams,	2
Second best, 2d premium, C. R. Williams,	1
Best 10 yards woolen [illegible]	[illegible]

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Best woolen stockings, 1st premium, Mrs. John Lester,..... $1 00
Second best, 2d premium, Mrs. J. K. Moore,..... 50
Best worsted knit stockings, 1st premium, J. Sigsworth,..... 1 00
Best pair knit gloves, 1st premium, D. A Stanton,..... 1 00

Committee—Clark P. Chapman, Nathaniel Kellogg, Mrs. Sam'l McCune, Mrs. Moore.

NEEDLE WORK.

Best evidence of skill and taste in embroidery, 1st premium, Mrs. D. Bates,.. $2 00
Best needle work collar, 1st premium, Mrs. M. Ross,..... 1 00
Best embroidered handkerchief, 1st premium, Miss T. Bates,..... 1 00
Best " skirt, 1st premium, (not taken) Miss A. A. Hatch,..... 1 00
Best " dress, for child, 1st premium, Mrs. C. Clemmons,..... 1 00
Best evidences of taste and skill in silk and worsted embroidery, 1st premium, Mrs. D. Bates,..... 2 00
Best pair ottoman covers, Miss Emma Bates,..... 1 00
Best embroidered mantilla, 1st premium, Mrs. M. Ross,..... 1 00
Best lamp mat, 1st premium, D. A. Stanton,..... 50
Best silk and fancy bonnet, 1st premium, Misses E. G. & S. A. Coffey,..... 1 00
Best pair slippers, 1st premium, Miss A. Chapin,..... 1 00
Best evidences of taste and skill in painting, first premium, Miss A. Gardner,.... 1 00
Best quilt or counterpane, 1st premium, Mrs. Guilde,..... 1 00
Best calico quilt, 1st premium, Mrs. D. Hansell,..... 1 00
Second best calico quilt, 2d premium, S. A. Downing,..... 50
Best specimen of fine linen shirts, 1st premium, S. A. Downing,..... 1 00
Best embroidered table cover, 1st premium, Miss Mary Chew,..... 1 00
Best specimen of crochet work, 1st premium, Miss Aurelia Torry,..... 1 00

Committee—Mrs. Emily Miller, Mrs. Dorus Bates, Mrs. Jesse Long, Mrs. George W. Jones.

MISCELLANEOUS DEPARTMENT.

Articles not mentioned in schedule, but thought worthy of a premium:

One pair cuffs and collars, first premium, Miss G. Gilman,..... $0 50
Best pair silk hose, premium to Mrs. D. Bates,..... 1 00
Best embroidered lace basque, premium to Miss G. Gilman,..... 1 00
Three pieces bead work, by Miss Lizzie Hatch, blind girl, 1st premium, Mrs. F. A. Hatch,..... 1 00

One watch case deserving a special notice, by Miss Sharpe, as being very fine and tasty. Also, one fancy box, very neat and delicate, by Mrs. D. Hansell. Also, one paper basket, exhibited much skill and worthy of especial notice, by Mrs. R. J. Emerson.

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twelve years of age. The exhibition of needle and fancy work, generally, was highly creditable to the exhibitors, and the committee regret, that owing to the want of time and the crowded condition of the hall, they were unable to notice at great length, and in some instances were obliged to pass unnoticed many articles of decided merit, worthy at least of especial notice and commendation.

Committee—Mrs. E. Miller, Mrs. D. Bates, Mrs. J. Long, Mrs. G. W. Jones.

PLOWING MATCH.

We, the undersigned, committee on plowing, do beg leave to report that we have attended to the duties assigned us, and consider the work done by the plowmen to be highly creditable to them. We would say that in making out our awards we have been governed by the time of execution, and the quality of the performance, and although No. 5, James Pollock, was the best to complete the work, yet the superiority of the same when done, was such as fully to entitle him to the first premium, $5, and we accordingly awarded him the same. The second is awarded to Wm. Ward, No. 4, for $3. We hope that at the future fairs of our society there may be more competition in this most important branch of a farmer's duty.

Committee.—Simon K. Taylor, J. W. Brown, Nathaniel Kellogg.

MARCELLUS ROSS,
Recording Secretary.

PUTNAM COUNTY.

BUEL INSTITUTE.

This old association answers as a county society for Putnam, as the Chicago institute does for Cook county.

We extract the following from the Prairie Farmer, adding of

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The tenth annual fair of the Buel Institute will be held in Peru, on Tuesday, Wednesday and Thursday, the 7th, 8th and 9th days of October, 1856.

President—L. L. Bullock, Tonica, La Salle county.

Vice Presidents—T. D. Brewster, Peru, La Salle county; A. Wardlaw, Granville, Putnam county; T. Minnihan, Hennepin, Putnam county.

Corresponding Secretary—J. H. McMillan, Peru, La Salle county.

Recording Secretary—L. G. Edgerly, Granville, Putnam county.

Treasurer—Wm. Evans, Peru, La Salle county.

ROCK ISLAND COUNTY.

President—Hon. John M. Gould.

Recording Secretary—Joseph Conet.

Corresponding Secretary—D. F. Kinney.

Treasurer—Jacob Sailor.

A fair was advertised for 1856, but there is no information in regard to it.

SANGAMON COUNTY.

An agricultural society existed in Sangamon county for some ten years or more previous to 1852, with varied success. In order, however, to give it a more permanent character, and to render it more generally useful, a meeting of citizens of the county, friendly to agriculture and the mechanic arts, was called in Springfield, on the 7th October, 1852. At that meeting an association was formed, called the "Agricultural and Mechanical

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shares twenty dollars each. A constitution was subsequently adopted; twenty acres of land, about one mile west of Springfield, was purchased, and measures taken to improve the same by fencing, cutting out surplus trees, and trimming those remaining, and putting the grounds, generally, in order for the fair of the state agricultural society, which was held upon them in the fall of 1853. In the fall of 1854, the fair of the state agricultural society was again held upon the same grounds; and the association did not deem it expedient, for these causes, to hold county fairs in the years 1853 and 1854.

The constitution of the society having been so changed as to make the annual yearly meeting for the election of officers on the first Saturday of March, the association met on the 3d March, 1855, and elected the following officers:

President—James McConnell.

Vice Presidents—H. Jacoby, J. N. Brown.

Treasurer—John Williams.

Secretary—T. G. Taylor.

At a special meeting of the association, on the 13th of the same month, measures were adopted for holding a county fair, on the 25th, 26th, 27th and 28th days of September following. The fair took place on the days specified, and there was a very creditable exhibition of stock, of mechanical articles, domestic manufactures, fruits, vegetables, &c. There was a large attendance of the people of the county. On the last day of the exhibition, the people were addressed by Judge Wm. Brown, of Jacksonville, on the great improvements which had been made in the state within the few previous years—the necessity of a thorough system of farming—the importance of planting groves and skirts of timber to furnish wood for fuel, trees for protection and timber upon our prairies, and the ease with which these objects would be accomplished—the advantages of a thorough education to all, of both sexes, without which they would not be the men or the women

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At the annual meeting, in March, 1856, the following officers were made:

President—H. Jacoby.

Vice Presidents—C. W. Vanderen, A. B. McConnell.

Treasurer—S. M. Parsons.

Secretary—S. Francis.

A county fair was held on the 23d, 24th, 25th and 26th days of September, 1856, on the grounds of the association. The weather was fine, the attendance good, and the entries much greater in number than at the previous fair. Judge S. W. Robbins addressed the people, on the last day of the fair, in some practical remarks, which were well received. He referred to the common condition of many farms, and to the desolate and untidy appearance often noticed about dwellings. Farms were seen where there were no gates, and where the cost of taking down and putting up bars in a year would pay for all the gates required. He spoke of the appearance of houses, set in all angles in relation to the roads or streets, with rubbish, weeds, filth, old sleds, old wagons, logs, heaps of chips about and in front of them; of farms destitute of orchards, and good gardens, and shade trees; of the general slatternly appearance often seen where a little labor would secure pleasure and beauty; and where these things were to be seen, was there much hope in the interior regulation of the dwellings? He was desired to make, on this occasion, practical remarks, in kindness, with the object of pointing out errors and showing how improvements could be made. It was useless, almost, to live, without we improved in knowledge in the ways of life, in means to add to our own and the happiness of others. God had given us the best country under heaven, and we could render it the most beautiful, and best subserve the great ends of man's creation by industry, directed by taste and knowledge.

The receipts of the society at the fair were more than $1,300, and there was paid out for premiums more than $1,000.

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—to show the choicest stock, the best fruit, the finest handiwork of the women, and all those instruments which the genius of our mechanics is bringing out for the benefit of farmers. Such an exhibition should be visited by all those who admire the beautiful and useful, and are in favor of progress. That there are men and families who would prefer to witness and to pay for witnessing the fooleries of the circus to such exhibitions as we speak of, is acknowledged with feelings of mortification. But public taste is improving. Every year adds to the numbers of those who come to the support of our agricultural societies, and who look forward, with keen anticipations of pleasure, to the great gala days of our farmers, their wives, sons and daughters—our county fairs.

SCHUYLER COUNTY.

In place of a formal report, the following letters of Mr. Manlove are taken from the Prairie Farmer:

"I have thought, for some time, to give you a few lines from Schuyler county, for it appears you have no other correspondent from our county, and as I am conscious that I neither have heretofore, nor have I now, anything of great importance to write about, I shall commence by grumbling a little as follows: Why is it that in all the arrangements of state fairs, Schuyler county has never furnished an officer, or even a judge of any kind? Is it because none are supposed to be capable, or because they don't push themselves forward? It think each county should be called on to furnish a portion of those who control our state fairs. I suppose all have some who would spend some time and money in doing so, and if any are so poor in men that none are competent, there ought to be an "emigrant aid society" formed instanter. Our wheat harvest—fall wheat very good, spring wheat only moderate, oats short but good, grass not more than half a crop—many meadows have been spoiled by a little worm, somewhat resembling a cut worm, but smaller. Corn short, but good color, ground very dry, and if it don't rain soon, crops must be cut short. A large number of peach trees were winter killed, and

ber. I have also noticed that Rawles' Janet has suffered as much, if not more, than any other. I see it has been different in other localities. We have no potatoes yet, and can only expect some from our late planting, provided it rains in any reasonable time.

Our county fair will be held on the 9th and 10th of October. I had expected our secretary would have furnished you some memoranda of our doings before this, but as it has not been done, I refer you to the first number of the Schuyler Citizen, a new paper, published in Rushville, a copy of which I send you.

The officers of the society are—

President—J. D. Manlove.

Vice Presidents—John Brown and James Dewitt.

Treasurer—Wm. Carson.

Recording Secretary—Dewitt C. Johnson.

Executive Committee—Henry Huston, John L. Moore, Hugh K. Lawler, John McCreery and Wm. Davis.

Respectfully yours,

J. D. MANLOVE.

Schuyler County, Illinois, July 31*st*, 1856."

SCHUYLER COUNTY FAIR, &C.

On the 16th and 17th of October last was held our county fair, for Schuyler county. It was our second, and was well attended. As compared with the first one it was a great improvement. Our show of stock, particularly of horses, jacks, mules and cattle was good. We have procured and fenced three acres of ground, in a good location, which will be enlarged before another fair.

Although our citizens have not taken that interest in it that was desirable, yet we consider that it is established on a permanent basis, and that ere long we shall be behind none of our county societies in all that is attractive and useful. The officers for the ensuing year are as follows:

President—James Dewitt.

Vice President————.

Recording Secretary—John C. Bagley.

Corresponding Secretary—James L. Anderson.

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We have some county pride, and would be pleased to have you remember us hereafter.

I would like to express my sentiments as an humble citizen and farmer, in relation to the place of holding our state fairs. I am not partial to any particular location, but do trust that some place may be selected in a central position in the state, and grounds procured and fitted up with all the fixtures necessary and convenient for the same; and if farmers cannot be accommodated on better terms and in a better manner than at Alton, let us go prepared to camp out, and live on the produce of our own farms, prepared by our own families. But I believe that if held annually at the same place, better accommodations would he had. Hotel-keepers would not act as if it was the last and only grab—be advertized to board for $1 50 and charge $2 75 per day. Besides the inconvenience of being charged two prices for poor fare, it appears to the writer that it would be a great improvement if in our grounds, particularly round the ring for stock exhibitions, seats could be erected, where in comfort all might behold what is to be seen without that confusion and crowding that necessarily follows, where all have to stand and where long legs are of importance. There are many reasons which might be given in favor of a permanent location for holding our great state jubilee; but I have only said thus much to elicit views from others, and to record my sentiments of the fleecing system practiced at Alton.

J. D. MANLOVE.

Rushville, Illinois, Nov. 18.

SCOTT COUNTY.

LIST OF PREMIUMS

Awarded at the Scott county agricultural fair, held at Winchester, Tuesday and Wednesday, 9th and 10th of September, 1856.

FIRST CLASS HORSES.

Wm. Frame, "Richard," best stallion, over four years,	$6
Edward Picket, "Rising Sun," second best,	3
A. Potts, "Pontiac," best three year old stallion,	5
D. A. Robbit, "John," second best,	2
Wm. L. Cambell, best stallion, one year old,	3
F. S. Clarkson, "Mountain Traveler," second best,	1
Anthony Potts, best sucking colt,	2
John Coultas, second best sucking colt,	1

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DRAFT STALLIONS.

A. Potts, "Promise," best draft stallion, over four,	$5
S. S. Spurgin, "Lofty," second best,	3
Daniel Moffat, best over three years old,	4
A. Potts, best over two years old,	3

DRAFT MARES.

A. Potts, "Lucy," best draft mare,	5
John Coultas, second best draft mare,	3
J. T. Newman, best two years old,	4
A. Potts, best one year old,	2

BROOD MARES.

W. M. Hawk, best brood mare,	6
J. T. Newman, "Lucy Henderson," second best,	3
Benjamin Frame, best two years old filly,	5
Joseph N. Campbell, best two years old filly,	4
Joseph Stahle, "Juliana," best one year old filly,	3

DRAFT GELDINGS.

John F. Edwards, best draft gelding,	5
Geo. Becraft, second best draft gelding,	3

MATCH HORSES.

Geo. Hardwich, best carriage horses,	5
John North, second best carriage horses,	3

SADDLE HORSES.

J. W. Eddings, best saddle horse,	5
D. A. Bobbitt, second best saddle horse,	3

CATTLE.

Joseph Campbell, "Ben," best bull, four years old,	6
E. B. Hitt, "Snow Drift," best bull, three years old,	6
E. M. Chrisman, "Melrose," best bull two years old,	4
M. W. Riggs, second best bull, two years old,	2
Shelton Hambleton, "Bourbon," best one year old and over,	3
Josiah Williams, "Sampson," second best bull one year old and over,	1
M. W. Riggs, "Henry Clay," best bull calf,	2
James Morrison, second best bull calf,	1

COWS.

E. B. Hitt, "Malten," best four years old and over,	6
M. W. Riggs, "Matilda," second best four years old and over,	3
E. B. Hitt, "Isabella," best heifer, three years old,	6

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James Gillham, "Primrose," best heifer calf,	$2
E. B. Hitt, second best heifer calf,	1

OXEN.

Robert Scott, best yoke oxen,	5

SWEEPSTAKES.

E. B. Hitt, "Sir Worthy," best bull,	10
" "Bourbon," best cow,	10

JACKS.

B. F. Hitt, "Charles," best jack, over three years old,	5
John Anderson, "Tippecanoe," second best jack, over three years old,	2

MULES.

James W. Gregory, best pair mules,	5
George Becraft, best yearling mule,	3
E. B. Hitt, best sucking mule,	3
Lawson Johnson, second best sucking mule,	1

SHEEP.

Josiah Williams, best buck,	3
James W. Gregory, second best buck,	1
" best ewe,	3
" discretionary premium awarded to a fine French Merino buck,	3

GEORGE L. BROWN, *Secretary.*

STEPHENSON COUNTY.

The first exhibition of this society, was held at Freeport, on Wednesday, October 4th, 1853.

President—O. W. Brewster.

Secretary—William Preston.

The society has been growing rapidly in the accession of members and the interest of its annual exhibition. The third and last fair was held at Freeport, on the 17th, 18th and 19th days of September last, 1856, upon the excellent grounds which have been appropriated for that purpose, consisting of about five acres, enclosed with a high, close board fence, with suitable stalls and

President—Charles H. Rosenstiel.

Secretary—D. H. Sunderland.

Treasurer—Eliphalet Ordway.

Executive Committee—Consisting of one from each town in the county, to-wit: William T. Spencer, Silver Creek; C. F. Taggart, Ridott; Madison Carnafix, Rock Run; G. S. Cadwell, Oneco; A. J. Garner, West Point; Jere. Pattison, Waddam's; William Preston, Freeport; J. B. Wright, Rock Grove; William Peters, Lancaster; William Goddard, Erin; C. Van Brocklin, Florence; Robert Lashell, Loran; P. A. Tisdel, Harlem; William P. Cox, Winslow; John H. Adams, Buckeye; Wm. Lloyd, Kent.

The life members of the society, are as follows: Charles H. Rosenstiel, Eliphalet Ordway, George Cadwell, H. R. Wheeler, John H. Adams, Ross Babcock, S. H. Earl, Thomas Pollock, John Brown, John Coates, Orlando Tisdel, S. D. Clark, Dr. C. Martin, H. H. Taylor, Luman Montague, William Lowry, James F. Taggart, John A. Clark, J. A. Davis, Chauncey Stebbins, Pells Manny, John K. Brewster, Daniel Krider, F. B. Williams, William Lloyd, James Brown, D. A. Knowlton, A. H. Wise.

The following report will give the reader a fair idea of the society's present interest, and its future prospects:

Wednesday morning was ushered in with a very heavy rain storm, and the weather continued gloomy and cold throughout the day, but the large amount of stock brought in, and the great number of entries made of various articles for exhibition, proved how efficiently the officers of the society had done their work, and how unanimously their efforts were seconded by the sturdy yeomanry and artisans of our county. Although our county is young in years it is old in resources; and the display made upon this occasion in every department of agricultural science and mechanical skill would have done honor to many sections of country settled a century since, and will redound to the credit of old Stephenson. Not a few visitors from "away down east" were astonished at the beautiful specimens of the most rare varieties of fruit, not easily beaten by fruit growers east or west, and an almost endless list of "monsters" in the vegetable kingdom—only another evidence of the almost inexhaustible fertility and agricultural resources of our county. The stock department was not neglected. The stables for cattle and horses were early filled with some of the very best

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high appreciation of the very best blood. There was also some of the very best varieties of sheep on exhibition, furnishing abundant testimony that ours is a wool growing climate. In the mechanical department there was an almost endless variety—machines for doing everything; threshing, mowing, reaping, sewing—dumb machines with nerves of iron and fingers of steel, doing their work with an ease and precision far excelling muscle and brain.

The sax-horn band, of Warren, enlivened the occasion with some excellent music, for which they deserve and receive the thanks of the society. The band was under the leadership of Mr. Moore, and won golden opinions from all who heard them.

The second day the sun shone brightly, but the air was very cold; the large enclosure was early crowded, however, with anxious spectators. Bronson Murray, the eminent agriculturist, delivered the oration in the open air, at 2 P. M.—a masterly production, arousing our farmers to a just appreciation of their true position.* Mr. Murray made many friends, and we trust his oration will be productive of great good. The various awarding committees began their duties early and earnestly, and we take pleasure in appending the reports of awarding committees:

HORSES.

Your committee found a very large collection of horses entered in the various classes, that would have been highly creditable at any exhibition; and to make selections from so large a number, all very good, they found no easy task. They endeavored, however, patiently and impartially to discharge the duties imposed upon them, and beg leave to submit the following as their report:

STALLIONS, SIX YEARS OLD AND OVER.

E. Torrey's "Black Hawk," first premium,	$6 00
S. S. Beaman's "Eclipse," second premium,	5 00
T. Wilson's Morgan "Havock," third premium,	4 00

A horse, called "Chesterfield," was entered in class No. 1, not entitled to a premium, not having been in the county long enough —a very fine horse.

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BLOOD STALLIONS, FOUR YEARS OLD AND LESS THAN SIX.

Black Hawk colt, entered by Mr. Kennedy, of Freeport, a very fine animal, but not entitled to a prize, not having been owned in the county more than ten days.

DRAUGHT STALLIONS, FOUR YEARS OLD.

Wm. Floyd's "Yorkshire," first premium,	$6 00
Dr. Voght's "Yorkshire," second premium,	5 00

BLOOD STALLIONS, THREE YEARS OLD AND LESS THAN FOUR.

H. Rosenstiel's "Eclipse," first premium,	6 00
J. Young's "Morgan," second premium,	5 00

DRAUGHT STALLIONS, THREE YEARS OLD AND LESS THAN FOUR.

Mr. Hoffmeister's "Frenchman," first premium,	5 00
Geo. Hall's "Bolingbroke," second premium,	4 00
— Pickard's "Young Yorkshire," third premium,	3 00

TWO YEARS OLD STALLIONS.

Lyman Strong, first premium,	5 00
H. G. Fowler, second premium,	4 00
J. H. Beaumont's "Black Hawk, third premium,	3 00

STALLIONS, ONE YEAR OLD AND LESS THAN TWO.

E. Torrey's "Young Black Hawk," first premium,	4 00
S. S. Beaman, second premium,	3 00
James Thomas, third premium,	2 00

SUCKING COLTS.

O. B. Munn, first premium,	3 00
C. S. Bagg, second premium,	2 00
— Spencer, third premium,	1 00

BROOD MARES.

T. Carnafix, first premium,	5 00
Mr. Spencer, second premium,	4 00
Wm. Lloyd, third premium,	3 00

SINGLE MARES, SIX YEARS OLD AND OVER.

L. Robie, first premium,	4 00
Dr. Voght, first premium,	3 00
J. H. Adams, third premium,	2 00

SINGLE MARES, FOUR YEARS OLD AND UNDER SIX.

John Ruthrauff, first premium,	4 00
B. G. Digen, second premium,	3 00

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FILLIES, TWO YEARS OLD AND LESS THAN THREE.

John Barfoot, first premium,	$3 00
L. Robie, second premium,	2 00
J. Swanzy, third premium,	1 00

YEARLING FILLIES.

L. Snow, Silver Creek, first premium,	2 00
J. Swanzy, Ridott, second premium,	1 50

MATCHED CARRIAGE HORSES, SIX YEARS OLD.

Amos Washburne, first premium,	3 00
J. H. Beaumont, second premium,	2 00
John Kerch, third premium,	1 00

SINGLE CARRIAGE HORSES—GELDINGS—SIX YEARS OLD AND OVER.

H. Putnam, first premium,	2 00
Geo. Simmons, second premium,	1 00

SINGLE GELDINGS, FOR CARRIAGE, LESS THAN SIX YEARS.

Stephen Green, first premium,	2 00

SINGLE CARRIAGE HORSES—GELDINGS—ENTERED FOR SPEED.

J. H. Beaumont, first premium,	2 00

SINGLE MARES, FOR CARRIAGE, FOR SPEED.

J. O. P. Burnside, first premium,	2 00

JACKS AND JENNIES.

But one entry, a fine jack owned by M. Slocumb, of Waddams, a fine one, but not eligible for a premium, not having been long enough in the county; also a Spanish jack, by Wilgus, of Beloit, not entitled to a premium, a very fine one.

MATCHED MULES.

One pair entered by John Stout, first premium,	$3 00

Also, a pair of very fine matched mules, by C. Wilgus, of Beloit, not entitled to a premium.

MULES, ONE YEAR OLD.

One pair entered by Daniel Moore, first premium.

Respectfully submitted.

S. H. EARL,
HIRAM SCOFIELD,
JAS. S. TAGGART.

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CATTLE.

Your committee would report the following as the result of their examination:

DURHAM BULLS, FOUR YEARS OLD AND OVER.

Henry Reitzell, first premium, ... $6 00
William A. Hawkins, second premium, ... 5 00
Thomas Wilson, third premium, ... 4 00

DURHAM BULLS, THREE YEARS OLD AND UNDER FOUR.

Only one of this class exhibited.

James Brown, Lancaster, first premium 6 00

DURHAM BULLS, TWO YEARS OLD AND UNDER THREE.

Only one of this class exhibited, but a good animal.

William Lloyd, first premium, ... 5 00

DURHAM BULLS, ONE YEAR OLD AND UNDER TWO.

William Kennison, second premium, ... 3 00

BULL CALVES.

William Rhodes, first premium, ... 3 00
Thomas Pollock, second premium, ... 2 00
John Brown, third premium, ... 1 00

DURHAM COWS.

William Young, first premium, ... 5 00
George P. Wilson, second premium, ... 4 00

DURHAM AND DEVON CROSS.

T. J. Turner, three years old cow, first premium, ... 4 00
James Gettemy, two years old heifer, first premium, ... 3 00
John Gettemy, two years old heifer, second premium, ... 2 00

There were two heifers of this age exhibited by S. D. Clark—remarkably fine animals, and deserving of mention, although they have not been in the county long enough to compete for premiums.

James Gettemy, a cross of Durham and Devon bull, two years old, first premium, $4 00

MILK COWS.

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Oscar Taylor, first premium 3 00

HEIFER CALVES.

Best heifer calf, age taken into consideration, Thomas Bunker, first premium, . $3 00
Thomas Pollock, second premium, ... 2 00

GRADED DURHAMS AND COMMON STOCK BULLS, THREE YEARS OLD.

Swanzy & Taggart, first premium 5 00
R. Pearce, second premium, ... 4 00
E. Torrey, two years old heifer, first premium, ... 2 00

WORKING OXEN.

Chauncey Stebbins, first premium, ... 8 00
Levi Robie, second premium, ... 2 00
Ralph Sabin, third premium, ... 1 00

TWO YEARS OLD STEERS.

Ralph Sabin, first premium, ... 2 00

The cattle on exhibition, taken as a whole, were one of the finest collections. Many specimens were worthy of especial notice, but your committee fear that it would make their report too long to do so. It is to be hoped that very many of the cattle growers of our county were at the fair, "taking notes" for their own especial benefit, and that the collection will be enlarged and improved each succeeding season.

Respectfully submitted,

HERBERT S. BLAKEWAY,
CHAS. SMALLWOOD,
CHAS. F. TAGGART.

SHEEP.

C. H. Rosenstiel:

First premium on one full bred French buck, ... $6 00
First premium on one yearling buck, full blood, ... 5 00
First premium on a pen of thirteen bucks, three-quarters French, ... 5 00
First premium on one pen of five buck lambs, ... 5 00
First premium on one full blood French ewe, ... 6 00
First premium on one pen of five French Merino ewes, ... 5 00

Henry Rosenstiel, Erin:

Second premium on a pen of five lambs, Spanish Merino, ... 2 00
Second premium on a full blood Spanish buck, ... 2 00
First premium on a three-quarters blood French buck, one year old, ... 5 00
Second premium on a pen of five Spanish ewes, ... 2 00

A. Fowler, Waddams:

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Chas. H. Rosenstiel:

First premium on a pen of Leicestershire sheep,	$2 00
First premium on a pen of Leicestershire lambs,	2 00
First premium on one two years old buck,	3 00
First premium on two one year old bucks,	3 00
First premium on a pen of five Leicestershire lamb ewes,	2 00
First premium on a pen of five Leicestershire buck lambs,	2 00
First premium on one frame of French Merino Leicestershire wool,	1 00

F. Watson:

Second premium on one Leicestershire buck,	2 00

A. Deiffebach:

Third premium on one Leicestershire buck,	1 00

Norman Philips:

Second premium on one native buck,	1 00

William Young:

First premium on one sheep,	2 00

B. F. Sanford, of Danby, Du Page county, Illinois, exhibited a flock of 52 sheep, half French and half Spanish, which deserve especial notice. They were a very fine flock of sheep.

The committee would beg leave to call the attention of our farmers to wool growing as a profitable and sure investment. Space will not permit them to specify the peculiar features of our climate and soil, but they believe that well directed efforts in this direction would meet with its appropriate reward.

Yours truly,

JOHN K. BREWSTER,
WM. BOYER,
I. H. SUNDERLAND.

SWINE.

The committee on swine report, that there was but one swine exhibited, and that by William Phillips, who is entitled to a first premium of $2.

JOSEPH SCOTT,
D. W. C. MALLORY.

POULTRY.

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John Barfoot, first premium,	$2 00
Chas E. Berry, second premium,	1 50
George Black, third premium,	1 00

D. S. BREWSTER,
JONATHAN G. FULLER,
CHARLES E. BERRY.

GRAIN.

The committee on grain proceeded to examine the various lots offered preparatory to awarding the premiums. The single lot of wheat on exhibition was of a very superior quality; but your committee have to regret that the farmers of our county did not bring in a greater variety. They were aware that a number of varieties of both spring and winter wheat are grown by our farmers, and think that a comparison of the best of the various varieties would result in benefit to the growers.

JOHN SWANZY,
J. T. SMITH,
J. B. WRIGHT.

BUTTER AND CHEESE.

The committee report but five entries in this class, by Mrs. A. J. Garner, Mrs. C. Vanbrocklin, P. A. Tisdel, Chas. Smallwood, William T. Spencer and John Milliken—all of an excellent quality.

A. A. BABCOCK and WIFE,
J. G. BEDEE and WIFE,
G. S. CADWELL and WIFE.

GARDEN VEGETABLES.

Your committee found some seventy-five entries made in this class, all of them highly creditable to the exhibitors; and regret that space will not permit them to notice the various articles in detail. Twenty varieties of potatoes were on exhibition by W. R. Fairburn, of Ridott, some of them produced from the seed; and an egg plant, by A. J. Garner, esq., bearing a monster egg—one of the largest your committee have ever seen. W. R. Fair-

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housewives, as the best variety for preserving. Mr. F. has more than quadrupled its size by cultivation.

J. SHEETZ,
I. C. ALLEN,
J. THOMAS.

FRUIT.

Your committee find on exhibition an abundant and creditable display of fruit, especially of apples. They found, among those exhibited, some of the choicest varieties of apples known to and approved by pomological conventions—exhibiting in our fruit-growers a good degree of research, energy and taste. A few varieties they found, however, that were condemned by growers, and judged by the committee not worthy of cultivation; while other varieties they found incorrectly labeled. After a somewhat patient examination, the committee have come to the following conclusions, as their judgment on all the matters presented for examination, viz:

APPLES.

For the greatest and best display of apples, summer, fall and winter, Luman Montague, West Point, first premium,..... $6 00
For the second do., J. W. Pickard, Erin, second premium,..... 5 00
For the third do., P. A. Tisdel, third premium, ... 4 00

SUMMER FRUIT.

For the best display and best varieties of summer fruit, E. Ordway, Freeport, first premium,..... 3 00

SEEDLINGS.

For the best display of seedlings, Robert Jones, Buckeye, first premium,..... 2 00

GRAPES.

Best display of grapes, Isabella, Robert Jones, Buckeye, first premium,..... 3 00

PEARS.

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CURRANT WINE.

Best bottle of currant wine, Chas. Rosenstiel, first premium,.....	$1 50
Second best bottle currant wine, P. A. Tisdell, second premium,.....	1 00
Third best bottle currant wine, Mrs. A. H. Wise, third premium,.....	75

HONEY.

Best display of honey, Jacob Stibgen, Freeport, first premium,.....	3 00
Second best display of honey, Chas. Rosenstiel, second premium,.....	2 00
Third best display of honey, W. T. Spencer, Silver Creek, third premium,....	1 00

All respectfully submitted.

A. R. WHITNEY,
A. E. SHEPHERD,
A. H. LACKEY.

FARM IMPLEMENTS.

Your committee found on exhibition a large collection of farming implements, comprising some of the very best machines known to the farmers of this or any other section. The committee would call the attention of the farmers of our county particularly to implements of home manufacture. John De Armit, of Freeport, had on exhibition a breaking plow, cultivator and drag combined; George E. Densmore, of West Point, a seed drill; Furray & Heidner and J. W. Barnes, Freeport, lumber wagons; F. M. De Armit, Freeport, a stirring plow; James Elliot, Freeport, an ox yoke; G. A. Stiles, Freeport, A. Curtis, Lena, and S. Andrews, Loran, fanning mills; all manufactured in our county. The particular friends of either of the above implements claim for them peculiar merits, and your committee found them all well worthy the consideration of our farmers. In making the awards we have been governed by the fitness of the implement for the purpose intended, and the fitness and durability of the workmanship.

Your committee also find many articles on exhibition that are highly deserving of mention, although, by the rules of the society, they are not eligible for premiums. R. C. Sutton, of Freeport, exhibited a top buggy and a trotting buggy, which deservedly attracted a great deal of attention. C. C. Bellows, of Mineral Point

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combined, of Easterly's patent, celebrated, very justly, for lightness of draft. Taylor & Wise, of the agricultural warehouse, Freeport, had on exhibition various agricultural implements, among which were Manny's reaper and mower combined, well known to the farmers of Stephenson, and deemed by your committee worthy of especial attention, as one of the most durable, simple and easily adjusted reapers and mowers in use; also, a cultivator, Wakefield's patent hand corn planter, and a variety of plows. Your committee noticed the celebrated Galena plow in the lot entered by them. H. G. Grattan, general agent, had on exhibition one of Atkins' self-raking reapers, which your committee deem worthy of especial commendation as a labor-saving machine. Your committee found all the agricultural implements on exhibition very creditable to the exhibitors.

Respectfully submitted.

SOLOMON LOWER,
M. BAUGASSER,
W. S. BURGESS.

[In the household arts, fancy articles, fine arts, flowers, etc., no special mention is made by the awarding committees; and as the lists are long, and of no great general interest, they are omitted here.—*Ed.*]

MANUFACTURED ARTICLES.

The committee to whom was referred the inspection of sundry manufactured articles, designated as class No. 15, report as follows: That although the number of articles was small, and, in many instances, but one of a kind exhibited, yet the quality was worthy of the highest commendations, attaining—as the manufacturers have done, in the superiority of the workmanship, and adaptation to the purposes for which the articles were designed—a degree of perfection rarely excelled.

In making awards, the committee have been governed by the tastes and skill displayed in the execution of the work, and the durability and fitness for use.

We noticed, also, the following articles, which, by the rules of the society, were not entitled to premiums, but worthy of decided

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broadcast grain seeder—excelling, in the regularity of its work, in its ease of adjustment, and in its simplicity and strength, anything now in use here—exhibited by A. Jenkins, Morgantown, Virginia; also, a case of joiners' and carpenters' tools, made after the latest and most improved model, and of the first quality. A boring machine, an apple parer and an improved flat iron heater, exhibited by Messrs. Churchill, Maverick & Bartlett, of the New York hardware store.

Some rifles, exhibited by J. Collman, deserve particular notice for durability and good workmanship; and J. O. Brown's water drawer, a new invention for drawing water from wells, similar, in some respects, to the pulley and rope, yet superior to it in every way.

A. W. RICE,
H. D. SMITH,
LORING SNOW.

PLOWING.

We, the undersigned, committee on plowing, most respectfully submit the following report:

In this department five teams were entered—two of horses and one of oxen. For speed in the execution and quality of the work, we award the premiums, as follows:

James Hoar, first premium,	$3 00
C. Best, second premium,	2 50
W. Swanzy, third premium, [plowing with oxen in competition with horse teams,]	2 00

ROSS BABCOCK,
DANIEL KUYDEN,
JNO. A. VAN EPS.

FARMS.

Your committee respectfully report, that in the discharge of the duties made incumbent upon them, they visited and examined the farms of Orlando Tisdel, of the town of Harlem; of William T. Spencer, of Silver Creek, and Wm. Lloyd, of Erin. Upon the farm of Mr. Tisdell, your committee found to admire a new, substantial and well arranged house, surrounded with a yard and garden, well filled with a large variety of fruit and ornamental trees

fruit, and showing, by their form and size, their abundance of fruit, and the absence of injurious insects, particularly of that pest of our orchards, the scale coccid, or bark louse, that they were watched over and cared for with a great deal of intelligence, zeal and attention. Mr. Tisdell has two hedges of the maclura growing on his farm, which your committee found neatly cultivated and trimmed, and which bids fair to test the durability and practicability of this shrub for the purpose of making a live fence in this latitude. Your committee award Mr. Tisdel the first premium of the society.

Upon the farm of Mr. Spencer, your committee found his buildings were not large, but neat and convenient, and his whole farm highly cultivated, his crops all looking uncommonly large, and promising a heavy yield. Mr. Spencer showed your committee a crib of corn, the growth of last year, the ears of which were extraordinarily large and even in size. His method in saving seed corn is to have none but those ears that have sixteen or more rows of corn, caring more for the number of rows and the large size of the ear round, than for its length. He has a dry, airy place, made and kept expressly for keeping seed corn. And we noticed, in connection with this, that in looking through his growing corn, we found he had not been troubled, as many farmers have been this season, with his seed corn rotting in the ground. Your committee awarded Mr. Spencer the second premium of the society.

Your committee found upon the farm of Mr. Lloyd a new and commodious brick house, and a large barn, with a stone basement, and underground stable. Mr. Lloyd takes pleasure in raising fine stock, and has imported from the east an extra fine looking two years old Durham bull. Your committee award to Mr. Lloyd the third premium of the society.

Your committee were most cordially entertained, and received the kindest attention while in the performance of their duties. They have to regret that a larger number of farms were not entered for premiums, but console themselves that a spirit of rivalry and emulation will induce many of our farmers to enter their farms for premiums the coming season, and be the cause of progress and

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CONCLUDING REMARKS.

The premiums awarded this season amount to nearly five hundred dollars. The expenses of the society, for rent of ground, erection of buildings, digging wells, &c., have been heavy, but the executive committee have reason to hope that the income will meet its liabilities. The society numbers upward of four hundred members. The following named gentlemen became life members this season: Wm. Lloyd, West Point; Orlando Tisdel, Harlem; H. H. Taylor and A. Wise, Freeport. The receipts of the three days of the fair, for membership, badges and admission tickets, reached $541 50. Remembering that this is but the third year of the society's existence, its friends have reason for congratulation upon its flourishing condition. That its prosperity may be unbounded until the almost fabulous agricultural and mechanical resources of our county are fully developed, is the sincere desire of the executive committee.

CHAS. H. ROSENSTIEL, *President.*

D. H. SUNDERLAND, *Secretary.*

ADDITIONAL REPORT.

The following is the list of officers elected for 1857:

President—Chas. H. Rosenstiel.

Vice Presidents—Jno. A. Davis, Conrad Van Brocklin and Chas. F. Taggart.

Recording Secretary—D. H. Sunderland.

Corresponding Secretary—W. S. Gray.

Treasurer—O. Ordway.

Money received during the past year, (1856).....		$986 61
Paid in premiums,.....	$521 75	
Other expenses,.....	427 39	
		949 14
Balance in treasury,.....		$37 47

W. S. GRAY, *Corresponding Secretary.*

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ST. CLAIR COUNTY.

President—Thornton Peeples.
Secretary—Ed. Randle.
Treasurer—H. K. Ashley,

And formed a constitution and by-laws; but for the want of energy and public spirit, it failed. Their constitution was, however, remodeled, when, by the formation of our state society, the subject of agricultural associations was again brought before the minds of the people. A large meeting of citizens of St. Clair assembled at Belleville, on the 8th of August, 1853, and was addressed by Gov. Reynolds, who has always been ready to lend the aid of his eloquence to every movement that promised to be of general utility. It was thought, however, that there would not be sufficient time for the necessary preparations to have a fair in the few months remaining before the winter, and the subject was laid over to the next general meeting in March following. Here it was taken up in good earnest, and a constitution and by-laws were adopted for the future government of the society. The difficulty of procuring a suitable piece of ground, for the exhibition, was solved by the generosity of Mr. B. J. West, who offered five acres of land, no more than three-fourths of a mile east of the court house, at Belleville, for the term of five years, free of charge. Mr. Edward Abend also gave the use of a piece of his land adjoining the other, and convenient to be inclosed with it. Voluntary contributions, beyond the payment of membership, were solicited and freely given. The officers and members of committees were zealous in carrying out the various duties enjoined upon them. These were particularly onerous for the president, Amos Thompson; the committees on the fair grounds, Ed. Scott, chairman; and on building, John Murray, chairman. The superintendent, S. B. Chandler, with whom all articles for exhibition were to be entered, the committee of arrangements, J. Murray, Thomas J. Krafft, C. T. Ellis, who assigned the articles brought in their proper places, and the treasurer, Russ. Hinkley, who, as late as September 16, stepped into the place of the former treasurer, resigned. Regulations for the fair and a list of the premiums to be delivered, were drawn up and printed for distribution. The 18th and 19th of October, the days of the fair, came on with propitious weather. Visitors from all parts of the county were seen thronging to the beautiful grove that had been cleared from brush and

articles exhibited. Strains of lively music animated, and strains of eloquence from the mouths of two of the *pioneers* our county boasts of—Rev. J. M. Peck and Gov. Reynolds—elevated the feelings of the vast assemblage.

If we did not consider that a hundred counties have an equal right, with us, to the pages of the state Transactions, we certainly should wish to see the speeches of these venerable gentlemen inserted, as well as the address delivered by P. B. Fouke, esq., before the meeting in August, which is full of curious and interesting remarks on the early history of agriculture in Illinois—mainly due to the reminiscences and suggestions of Mr. Peck.

The general impression at the fair was, that everybody seemed pleased. Many saw, for the first time, a superior head of cattle, in the breed of which our county undoubtedly has been behind the times; and the premiums in this class were willingly awarded to Sam. Winn, James Brown, Abner Pyle, J. B. Tomlinson and Wm. Short, who have opened the road to improvement in stock growing. Good horses, asses and mules we knew that we had in our possession. The premiums were given, for horses, to Penn & Pierce, R. Quick, Isaac Eyman, J. Whiteside, Benj. Scott, Henry Goedeking, J. Griffin, C. Fruth, S. Shook, Ph. Land, J. T. Lemen, and W. J. McBride; for asses, to R. Quick, Alb. Kersting, four jacks, imported from Italy, M. J. Gannon and F. Stoltz; for mules, to Alex. McClintock, Wm. McClintock, Wm. Rentchler and J. D. Sandidge.

The machine shops of Cox & Roberts, of Sampson, Walker & Co., of J. B. Renthchler exhibited threshers and cleaners, corn shellers, saw mills, horse powers, feed cutters, churns and plows.

Geo. Wilderman, Jos. Griffen, Jackson Brake, Isaac Scott, Mrs. Messenger, I. Eyman, W. J. McBride and Ad. Reuss showed splendid specimens of fruit. Theodore Hilgard and Val. Huff received premiums for their excellent Catawba wines; and many articles proved the taste, skill and industry of our ladies. But it was a new thing to them, and we had to complain that no more of them favored our fair with contributions of their handiwork. Modesty, and the mistaken idea that only extraordinary things would be expected, had caused a great many to keep excellent ar-

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and should be, we have to repeat, year after year, and as with us, so, probably, with every agricultural society. Particularly do we still miss a hearty co-operation of our mechanics. They, by exhibiting specimens of their work, would certainly enlarge the circle of their customers sufficiently to be paid for the trouble and expense which may be indispensably connected with bringing their articles to the fairs, and for which the premiums offered are no equivalent, and *do not pretend to be.* Would it not be proper to change the titles of our societies into agricultural and *industrial*, so that the name itself would show that the mechanics are considered an integral part of these societies, and are there of their own rights, and not, as they often seem to feel, only by sufferance?

The results of this, our first fair, as summed up in the report of the finance committee were:

Received,	$1,075 05
Paid out,	997 91
Balance, cash in treasury,	$77 14

Of the expenses $840 were used for clearing and inclosing the fair ground. The number of persons present, on the two days of the fair, may be calculated at at least 2,700; 611 badges of membership, admitting, with the member, his family, say three persons each, would give over 1,800, and 215 tickets, at 25 cts., and 10 cts. for single entries, $860.

FAIR OF 1855.

In 1855 the same officers were mostly re-elected. To the vice presidents, from the several precincts, whose special duty it was made to solicit and collect contributions of members, were added five more, taken from the county at large. S. B. Chandler, corresponding secretary, was also appointed register, to take the entries of all articles to be exhibited; and Felix Scott, superintendent, to place them on the ground. I. Murray, B. J. West,

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of premiums was much enlarged, and the amount offered raised from $117 50 of last year, to $532.

Premiums were awarded in class—

I.—Cattle—To W. M. Stothem, I. Griffin, Sam. Winn, 3, Abn. Pyle, Jos. Bamber, M. Romeis, A. Kersting.

II.—Horses—To J. Griffin, 3, G. Bunsen & Sons, 3, F. Perring, I. Eyman, 2, W. Rentchler, 2, P. Hermann, 2, S. Shook, C. Pitman, H. Pfiffner, W. Kinney, C. Fruth, 2, B. Scott, 2, Thos. J. Gaskill, J. T. Lemen, G. L. Phelps, R. A. Moore, and to Geo. Frick, M. Stahlheber, J. Whiteside, Val. Briegel, Phil. Ensinger, 2, of Monroe county.

III.—Asses—To J. G. Dupuy, A. Kersting, M. J. Gannon, 4, W. M. Stethem, F. Stoltz.

IV.—Mules—To Is. Eyman, R. Hinckley, W. Rentchler, S. Shook, W. Kinney. E. H. Rider, R. Quick, 2.

V.—Sheep—To. W. Kinney.

VI.—Swine—To G. L. Phelps, 4, W. Kinney, I. Short, for a hog of 809 pounds.

XV.—Wine—To Val. Huff, 4, E. Tittman. Cider—Th. Hilgard. Vinegar—Felix Scott.

XVI.—Wheat—To C. Bornmann, J. T. Lemen, 2, R. A. Moore, 2, F. Wenige, J. McComb. Corn—To A. Schott, J. B. Moore, Jos. Hill.

XVII.—Fruit—To R. A. Moore, Jack. Brake, A. Engelmann, 4, C. Bornmann, 2, J. A. Pierce; and for winter fruit awarded February 26, 1856, to Ad. Engelman and Ad. Reuss.

XVIII.—Vegetables—To J. W. Middlecoff, Th. Hilgard, Th. J. Gaskill, S. B. Chandler, W. Rutherford, A. Schott, A. G. Badgley, Ad. Reuss.

XIX.—Flowers—To ——— & Goety, a very fine assortment.

XXVII.—Farm Implements—To T. J. Walker & Co., plows, J. B. Rentchler, drill, Nolen & Bett, Atkins' reaper, and to Geiss & Brosius, apple mill and cider press.

XXIV.—Shoes—To E. Schneidewind, O. Fisher, Beimbrinck & Wehmeyer, E. Schalck.

There were also a few, only too few, articles exhibited in garments, saddlery, cabinet ware, sculpture, flour, hams, poultry

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serves and pickles, drawings and paintings, and several miscellaneous articles.

The pecuniary results of this fair, however, were not as favorable as we had expected. Though there had been a surplus of $77 in the treasury, and $50 were received from the state treasurer under an appropriation of the legislature, there were two things that operated against us this time: First, the contributions of old members was by the constitution but fifty cents; and second, in in the night between the two fair days, 3d and 4th of October, we had a storm with a heavy shower, which probably reduced the income of the second day, by the whole deficit. The amount of money received was $987 06; the amount paid out, $1,101 01; of which $281 were for lumber, and $166 for a large and substantial tent. The number of members was 703. The amount received for single entry tickets, $232 10; but it would be unsafe to calculate thereby the number of visitors

At 3x703=2,109 and
At 4x232= 922

3,038—because the rainy weather of the second day, and the prevalence of fever and ague, kept a great many at home, that would otherwise have been there.

At the society's general meeting, in March, 1856, the constitution was in some parts amended. The annual contribution was raised from fifty cents to one dollar. All the officers, together with the ex-presidents and the members of the standing committees, were declared to form the executive board, so that it should be easier than heretofore to have a quorum for transacting necessary business. The executive board for 1856 consists of the following members:

President—J. T. Lemen.

Vice Presidents—Abn. Pyle, B. Scott, Joshua Begole, Thomas Winstanley L. Pulse, J. M. Nimerick, B. J. Smith, Jas. Hill, J. Griffin, C. Coester, L. Winter, Jeff. Rainey, Jack. Knoebel, Felix Scott, R. A. Moore, Joseph Griffen, C. Bornmann, H. Goedeking.

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Committee on the Fair Grounds—B. J. West, J. Murray, S. B. Chandler.

Committee on Printing and Premiums—The president, treasurer, recording secretary, superintendent, and Henry Goedeking.

Committee of Arrangements—The superintendent, E. W. West, S. Stookey, Th. J. Krafft, Felix Scott, J. W. Hughes, E. Abend.

FAIR OF 1856.

In reference to the state fair, which was to come off at Alton, September 30, the time of holding ours was fixed as early as September 17th and 18th. The premium list was again made more comprehensive, by augmenting the subdivisions of classes, and it was still better and more suitably arranged. Premiums on field crops were offered, to be awarded in February next; and as the diplomas and books presented at our last fair had not given the expected satisfaction, all the premiums were set in money, and were given in silver ware. Near $1,200 were offered; in classes I, II and VII, large sweepstake premiums of $30 and $15 as first, and of $25 and $10 as second premiums, for the five best head of cattle, horses and swine, belonging to one proprietor, were raised by private subscription. The entrance fees—which had produced, in 1854, but $63, and in 1855, but $69 80—were abolished, because it seemed improper to lay a special tax upon the exhibitors, who, in fact, make up the whole fair, and have less real gain by it than ordinary visitors, who see good and useful articles, perhaps entirely unknown to them, and suggesting new applications and more profitable investments of time, money and labor.

But here we arrive at the great difficulty. The society would wish to give the most ample premiums; not so large, indeed, as to make the money to be gained the principal object for exhibiting, but large enough to indemnify each exhibitor for all his trouble and expense. But this would require a large amount of money, which is ultimately to be collected from the members of

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no premium at all, might think himself unjustly treated, but would rest satisfied with a second one, for the awards of the committees are frequently reversed by the public. But if the expense for the fair becomes too heavy on the people, or recurs too often, would biennial fairs be a proper remedy? We think not; and that such a course would destroy the recurring interest therein, if not the whole plan and institution. To give them stability, we should refrain from extravagant expenditures, and from means of raising the money therefor foreign to the subject. We should refrain from everything that panders to the depraved taste for horse racing; and especially should we refrain from urging or even suffering our girls to expose themselves to the public gaze in circus riding. Our fairs should excite none but noble passions, or, rather, no passions at all—only the friendly strife of emulation. They should be feasts of rational enjoyment and of pleasing relaxation from the constant cares of our business life. It is from day to day more clearly understood and more generally conceded that we carry our activity too far, and task the strength of our minds and bodies too incessantly, and that our whole system suffers already under this overstretch of its powers. Against this growing evil there is no better—there is almost no other—remedy than more frequent occasions of recreation and leisure. Let the friendly, social gatherings of our fairs give such holidays, and in this respect, also, they will be of incalculable benefit to us.

To return to our own county fair. It was favored by good weather, favored by many visitors, (perhaps 4,000,) favored by a greater number of articles on exhibition, and many of those were also better than we had seen them before—none more so than the cattle, in which, already, the beneficial influence of agricultural fairs clearly showed itself. Horses were well represented in all their subdivisions; vegetables plentier than at the former fairs; fruit, though peaches had been cut off by the severe winter, excellent; wines of 1853, '54 and '55, and cider as old as 1851; preserves and pickles of almost every variety of fruit and preparation received 31 premiums; and of the ladies' articles proper,

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I.—Cattle—E. W. West, 2, B. Scott, C. Bornmann, 4, Joseph Ogle, 2, and first sweepstake premium, Sam. Winn, 2, S. B. Chandler, Abn. Pyle, 2, R. A. Moore, 2, and second sweepstake premium, J. N. Glasgow, A. Kersting.

II.—Horses—R. Thrifft, J. Griffin, 4, and second sweepstake premium, F. Perring, B. Knobeloch, R. Quick, S. Morgan, B. F. Rentchler, Baumann & Morgenthaler, Ph. Scott, Isaac Hill, M. Seiter, C. T. Askins, J. Whiteside, J. D. Sandidge, C. Fruth, W. Griffin, Is. Eyman, M. W. Charles, J. McCulley, M. Anderson, R. A. Moore, 2, J. T. Lemen, W.J. McBride & Son, J. O. Pierce & Crothers, Tho. Padfield, H. H. Beetle, J. F. Roach, B. Scott, 1, and first sweepstake premium.

III.—Asses—A. Kersting, Tho. J. Pulliam, M. J. Gannon, 8, R. Quick, 2.

IV.—Mules—Tho. J. Wright, J. A. Pierce, Jos. H. Ripley, Jam. Ripley, P. Mulligan, W. Kinney, A. Pyle, H. Renth.

V.—Sheep—W. Kinney.

VI.—Swine—G. L. Phelps, 1, and second sweepstake premium, C. Bornmann, 2, and first sweepstake premium, G. C. Mueller.

XV.—Wine—Val. Huff, 3, Theo. Hilgard. Cider—G. C. Mueller, 3, Th. Hilgard, 2, Jas. Knoebel. Vinegar—Fel. Scott, Th. Hilgard.

XVI.—Wheat—R. Hinckley, Al. Ewers, 21, R. A. Moore, J. Alexander, Bunsen Brothers, G. P. Lienesch. Corn—J. H. Ripley, E. W. West. Buckwheat—G. C. Mueller. Timothy Seed—E. W. West.

XVII.—Apples—E. W. West, Geo. Wilderman, 2, R. A. Moore, C. Bornmann, 2, A. Englemann, R. B. Moore, J. C. Ruddork. Pears—C. Bornmann, 2, A. Engelmann. Grapes—A. Engelmann, Theo. Engelmann, Val. Huff, A. Reuss. Quinces—A. Engelmann, G. Wildermann.

XVIII.—Vegetables—J. H. Ripley, A. Stookey, jr., Jack Knoebel, 3, E. W. West, J. C. Ruddork, A. Reuss, 3, Th. Hilgard, A. Jones, 3, L. Winter, R. Hinckley, 2, Jos. Fuess, Bunsen Brothers, J. Sigerson & Brothers, of St. Louis.

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XIX.—Flowers—M. Lemmler, 6, J. Sigerson & Brothers.

XXXIV.—Miscellaneous—H. Bauer, soap and candles; A. Dengler, trusses; L. Fuchs, stuffed animals; P. & A. Muenzenberger, silk worms and silk; Kissell & Merkell, horse shoes.

A spirit of commendable emulation has been wanting, and generally felt throughout this county, until the organization of our county society and the holding of a public fair, annually, has awakened a new spirit among the farmers of the county. They now begin to regard the subject and the science of agriculture as one of the most interesting, useful and ennobling pursuits of life. From a state of comparative supineness, a spirit of inquiry and searching investigation has been aroused, and each is more desirous of profiting by the experience and teachings of his more intelligent, successful and accomplished neighbor. Agriculture, as a practical science, begins to present its interesting and useful truths to the inquiring mind, and the golden rewards it freely offers to him who will devoutly worship at her shrine, is a sufficient guaranty that henceforth the subject will receive that increased attention which its true dignity so justly merits. The various agricultural works, filled with teachings of experience, begin to find a prominent place in the library of every farmer, and the weekly perusal of one or more agricultural papers, give renewed energy to the laudable spirit already awakened, and add much to his store of useful, practical knowledge. Such is but a faint outline of the happy results produced by the organization and operations of our county society, and the country has reason to believe that, from year to year, increased attention will be given and additional interest awakened to the best possible manner of successfully developing all the various industrial departments of this God's chosen pursuit of man, until, in truth, our county shall be the garden-spot of the state.

ANT. SCHOTT,
Recording Secretary.

To J. A. Kennicott,

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EXTRACTS FROM A REPORT READ BEFORE THE ST. CLAIR AGRICULTURAL SOCIETY, BELLEVILLE, AUGUST 14, 1854,

By Hon. P. B. FOUKE.

PROGRESSION OF AGRICULTURE IN SOUTHERN ILLINOIS.

After some preliminary observations, the committee goes on to say: "The most of the information contained in the report has been obtained from the Rev. John M. Peck, whose mind is a storehouse of knowledge, and whose ready pen has done as much or probably more for the development of our own Illinois, than any other individual now living. With this brief explanation, I will read the report. The period of the formation of the state government forms a convenient epoch in progressive agriculture in Illinois, and more especially in St. Clair county. Previous to this period, no plow was seen on the prairies after they were once broken up, or on timbered land, but the "bar share," the shovel plow and bull tongue, also called the scooper, which was a large, clumsy machine, and very heavy, was used for breaking up prairies. But in those days peltry supplied the place of gold and silver as a circulating medium, and the unerring rifle was more relied upon, as a means of support, than the plow. But few, therefore, had the enterprise to break up prairie; indeed, but few had the teams to do it with. The settlements were scattered over the southern counties; the extreme northern one being in what is now Greene county, then a portion of Madison. The population, by counting all travelers and emigrants passing across to Missouri, barely reached 40,000, and at this period, 1818, almost every family did a little in the way of farming; for even about the small villages then existing lawyers and doctors, with merchants and mechanics, had what was then termed their "truck patches," if not regular farms. Allowing six to a family, gives 6,666 families. We may then estimate the number of families who at that time ate their bread by the sweat of their brow, at 6,000. In conversing with

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1850 there were, at that time, 5,039,545 acres under high and successful cultivation. But to return to the early history of agriculture. Corn was then the staple production. Wheat was raised only in a few counties, and in small quantities. Each of the three kinds of plows mentioned was used in the corn field. The ground was light and fresh, and corn required much less labor to produce a tolerable crop than at this time. The hoe of that period was a clumsy instrument, and used for planting, and the carelessness with which the planting and covering were often conducted would render it almost impossible to tell which way the rows ran. The most populous counties, and those in which were the best farms, then extended in a line along the Mississippi river from Alton to Cairo, along the Ohio and up the Wabash to Crawford county, above Vincennes. Along the waters of the Kaskaskia and Little Wabash, the settlements were very scattering. Mills were a scarce kind of machinery, even had wheat been abundant. There were a few that run by water, at a suitable stage, in Madison, St. Clair, Monroe and Randolph counties, but when floods came they would be obliged to suspend operation, and often vexatious and protracted delays occasioned by necessary repairs after the water receded.

Horse mills, and most frequently turned with a band or rope of raw hide, were the more common machines to make breadstuffs, and a "scaark" helped to separate the bran from the flour by hand. This last machine was a deerskin, with the hair shaved off, drawn over a rim or hoop, and holes burnt through it with a wire. Flour for the St. Louis market (in fact it was the only one) was prepared in this way by some of our enterprising farmers. Coeval with the band mill was the large wheel with cogs, drawn by horses, running in a trundle head, that carried the stones all in a horizontal position. Next followed the ox mill, or the inclined plane, which was brought into use long after the adoption of the old state constitution. Before these mills could be con-

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A very few farmers, in those early days, fallowed their wheat ground in early summer, by plowing it immediately after corn planting, and opening their fields for their own and their neighbors' stock to keep down the vegetation by feeding. This land was plowed a second time in September, and sometimes a third time. Such farmers never failed of having a good crop of wheat, say from 25 to 35 bushels to the acre.

The late Risdan Moore, esq., who lived four miles east of Belleville, broke up, fenced and sowed thirty acres of wheat on new ground in 1819. One of our oldest citizens informs us that he was there in 1820, at the time of harvest, and never saw a more beautiful field. In proportion to the number of acres sown, the wheat harvest of that year was a very prolific one, and weighed from 66 to 69 pounds to the bushel.

The wheat that year was covered with a red rust, which colored the garments and annoyed the people very much in harvesting, stacking and threshing, but did not injure the grain. Most of the wheat then raised was in the corn fields. In the months of August and September, most generally in September, farmers sowed wheat among the corn, and plowed it in lightly; and I have been informed by our worthy president that the weeds were frequently so high among the corn, in consequence of indifferent cultivation, that they were compelled to ride on horseback to sow the wheat. In spring the stalks were cut with a hoe, and at harvest from ten to fifteen bushels of wheat to the acre was gathered. This easy and convenient mode of farming continued the custom of the country for many years. A little labor produced a sufficiency generally to supply the demand; hence, our pioneer farmers could see no necessity for bestowing labor upon ground. To sow the wheat with little or no preparation, was labor enough, and corn, once dropped and covered, was not unfrequently left, after that, to take care of itself.

But upon inquiring we find that the three succeeding years, 1821, '22, '23, the wheat crop was very deficient. It was blasted and injured with smut, and had to be washed before it was fit for grinding. The three succeeding years produced tolerable crops of wheat, but a common notion prevailed amongst those farmers

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injured and destroyed the wheat in the stack and in the granary. It is generally believed by our oldest citizens that the two successive severe winters of 1830 and 1831 probably destroyed this insect, for it disappeared.

During the period from 1820 to 1830, farms and farmers increased and a proportionate increase had been given to this staple grain. The old horse mills had given place to ox mills on the inclined plane, and the cradle was supplanting the sickle in the fields. In 1830 our old neighbor, the venerable Thomas Harrison and his sons, started their first steam mill, in Belleville, with one run of buhr stones and one pair of corn crackers. Soon after Mr. Richard Rapier, at that time one of our most enterprising merchants and business men, erected, at a ruinous expense, the mill now owned by the Messrs. Hinckley, in this place. Steam mills had been frequently attempted in the state previously, but they proved ruinous failures. They were erected on a fictitious capital, or by a company of gentlemen actuated by a generous motive to benefit the public, who depended on hired laborers and salaried men to manage their business. The successful enterprise, however, of the Messrs. Harrison, demonstrated that steam flouring mills were profitable, when managed by the owners without the intervention of clerks and agents. Their success was very great, for in 1835 they put up the large brick mill, with its manufacturing apparatus, by the creek. This mill, aided by the Rapier mill, gave the great impulse to our farmers to raise wheat, and opened the way for other flour manufactories to be set up in this county. But what changes have been made in our agricultural instruments for wheat farming! The "bar share," the "shovel plow" and the "scooper" have disappeared. Improved plows of the old fashioned kind were introduced by some farmers thirty years ago.

Perhaps it is not generally known, and believing it to be a matter worthy of notice, I will here state that the "diamond plow," as it is called, originated in St. Clair county. The late Mr. Moore, who was instantaneously killed by lightning in 1852, was the inventor; and the late William Bridges, his neighbor, made the first share under Mr. Moore's directions. Mr. Reuben Rutherford, also a native of this county, a self-taught blacksmith, took to the trade of manufacturing these kind of plows. As there was

tern, and in a few years the "diamond plow" produced one of the most extraordinary revolutions in tilling the ground, in Southern Illinois, ever witnessed in the progress of good husbandry. It holds pre-eminence in this part of the state in the wheat and corn fields, for the following reasons:

1st. It turns over a deep and wide furrow, and leaves the ground level.

2d. It cuts a deeper furrow, with less motive power, than any plow within our knowledge.

3d. It plows clean in the thickest and tallest weeds or in the fresh and rank stubble field without clogging.

Mr. Moore, the year before his unfortunate death, invented a simple machine to grub up large and tall trees, and small poles. Its cost is from ten to twelve dollars. With it two men can take up a tree from four to eighteen (?) inches in diamater, at the rate of one in five minutes—or on an average ten in an hour—or one hundred in a day. [This is evidently an error of the copyist.—*Ed.*] But one machine has ever been made, and that is owned by the Rev. John M. Peck and sons. This machine in grubbing up our young timber and clearing the ground of all obstructions, is an advancement on the old mode of working among the stumps, with the annoyance of sprouts and brushwood, fully equal to the diamond plow over the old bar share.

Mr. Moore, the inventor of this machine, which Rev. Mr. Peck calls "the stump excavator," was a native of Georgia, and came to Illinois with his father while a youth. Mr. Bridges, who made the first diamond plow, was a native of Kentucky, but from early life a resident of the frontier of Missouri.

At the point from which we started, cultivated meadows were scarcely known. Coarse hay, in any quantity, could be gathered from the prairies, and the wild range furnished abundant food for stock in winter as well as summer. Many of our old citizens recollect when wild horses were found on the American bottom, and became the property of those who caught and broke them. The

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to convince our old fashioned farmers, who had been accustomed to the "range," that any profits could be gained by costly and mixed blood. Some made the experiment and gained but little because they neglected the essential thing in all such improvements—keeping their stock within inclosures, and in fewer numbers, and in full and regular feeding. The change in the habits, the quality and the profit of swine, was the most striking and convincing to our farmers, and the most rapid improvement was made in this species of stock."

The report then goes on to describe the early failures in cultivated grasses, from neglect and underseeding, and the abundant success of deep culture, full seeding, destruction of all noxious weeds, and even the *manuring* of meadows. Timothy, sown at the rate of twelve quarts to the acre, at the time of putting in wheat, in September, usually yields from two and a half to three tons per acre, and may be kept up for many years; whereas, that but lightly seeded never thickens, and when on poor, hard or sandy land, must be a failure.

TAZEWELL COUNTY.

The editor regrets that none other than a newspaper account of the fair of 1856 has been presented as a report from this old and respectable society, for the last two years. The following is extracted from the Plaindealer. The fair, for 1856, was held at Tremont, Sept. 24th and 25th. Number of entries, 495.

TREMONT, *Tazewell county*, *Sept.*, 1856.

The committee on farms beg leave to present the following report: On the 7th day of July last year's committee met at Tremont, and proceeded to examine the farms presented for premiums to the agricultural society of Tazewell county.

The first farm examined was owned by Mr. Alfred Norris, in sec. 17, T. 24, R. 3, consisting of fifty acres.

This farm, the owner informed us, had, up to that date, been cultivated by himself, with the assistance of a hand two months.

On this farm we found about 30 acres of corn, well cultivated, 3-4 of an acre of potatoes, about 10 acres of pasture and 6 of meadow—the meadow and pasture both poor. There is on this

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fences not in good repair, and the garden decidedly in bad order. The barn and out-houses, together with the dwelling, showed a want of care not commendable in rural life. We saw with gratification that the year's wood was prepared. Upon the whole, your committee could not recommend said farm as deserving the first or second premium.

The next farm examined by your committee is owned by Moses Morse, situated in sec. 21, T. 24, 4 W., containing 160 acres. We found about forty acres of this under cultivation; the balance in wood land and wood land pasture. This farm has been cultivated by two young men and one elderly gentleman of about sixty years of age.

On this farm we found two dwelling houses in good repair, each with a cellar under it, one good cistern, good wells with pumps in them; forty bearing apple trees, in good condition for this season; one barn and cattle shed, a work shop and tool house and carriage house, a corn barn, with a wagon house; a good pig sty and a brood of hogs.

This farm is divided into six lots, besides the yards about the house and garden. We here found about 30 acres of corn in good tilth, six acres of good meadow, a few acres of spring wheat and oats, not good.

Here, also, we found abundance of wood prepared for the year; the fences and gates in good order, and all the buildings decidedly neat.

Your committee would do injustice to themselves and the society, should they neglect to bear testimony to the neat and orderly manner in which everything upon the inside of these dwellings is conducted. The lady of the house informed us that she had the milk of six cows, and showed us her dairy rooms. Here we found that industry, skill and economy were beautifully blended. Nothing can be more commendable in or about a farm house than good housewifery, a science, we regret to say, of which too many wives and daughters are sadly deficient.

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Treasurer—J. L. Hayward.

Secretary—Seth Talbot, jr.

Executive Committee—P. Menard, A. Sperry, Wm. R. Lackland, Daniel Trail, R. W. Briggs, C. Crandall and Nathan Dillon.

SETH TALBOT, JR., *Secretary.*

UNION COUNTY.

To JOHN A. KENNICOTT, *Cor. Sec'y State Ag'l Society:*

SIR—In obedience to the requirements of our constitution, I have the honor to report that at a meeting of the citizens of Union county, assembled at the Baptist church, in Jonesboro, on the 22d of December, A. D. 1855, to take into consideration the propriety of forming a society for the promotion of agricultural and mechanical pursuits,

On motion of S. S. Condon, Hon. Samuel Hunsaker was unanimously chosen chairman, and C. G. Flaeegle, secretary.

The object of the meeting was (by request) briefly explained by Dr. Condon, and he followed by Hon. Jno. Dougherty and H. W. Webb, esq., both of whom entertained the audience with clear, eloquent and lucid addresses, in which they vividly portrayed the many advantages likely to inure to agricultural and mechanical industry by combination as a society. After which, twenty-seven names were handed in as members of the association.

Thereupon, on motion of S. S. Condon, the constitution recommended to county societies, and found in the "Transactions" of the state agricultural society, was unanimously adopted, "*verbatim et literatim.*"

The following officers were elected:

President—George Hunsaker.

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At a subsequent meeting, held on 10th of May, it was agreed to hold the first annual fair at Jonesboro, on the 24th and 25th days of September, and a committee was formed for the selection of suitable grounds, and for fixing sheds, tables, stalls, etc. And Messrs Grear & Co., jewelers and watchmakers, were empowered to buy the necessary plate, books, &c., for the use of the society, to be awarded as premiums. Jacob Hillman, George Kimmell, jr., Isaac N. Albright, and T. C. James were appointed general superintendents of the fair grounds, with power to emply police force and gate keepers.

A fine piece of ground, adjoining the town, and admirably calculated for the purpose, being well supplied with fine forest trees for shade, and plenty of spring water, was tendered the society by the kindness of Paul Frick, esq., and accepted. This ground was beautifully laid out, and every necessary building, stall, shed, table, secretary's office, &c., &c., erected by the general superintendents, to whom great praise is certainly due, for the spirited manner they performed their duties throughout the continuance of the fair.

The 24th and 25th days of September, were ushered in apparently for the express purpose of a holiday or jubilee—for finer weather could not have been desired. The attendance at the fair was variously estimated at from 3,500 to 5,000. The deportment of the vast assembly was orderly, and all seemed to enjoy this (to us of Egypt) novel exhibition, with a zest, which was shown in the sparkling eyes and brilliant smiles of the *fair* as well as the merry ringing laugh of the coarser part of the assembly.

T. O. Baird, esq., of Cairo, delivered a fine, eloquent and logical address at the opening, on the first day, and Semple Parks, esq., of Jonesboro, entertained the immense crowd from the stand on the second day, on the subject of agriculture.

The services of the Jonesboro brass band were in requisition during the whole time, and nobly did they acquit themselves, ma-

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Best 1 year old Durham bull, "Belvidere," Robert S. Reynolds, ... $2 00
Best 2 year old Durham heifer, " " 2 00
Best 1 year old " " " " 1 00
Best calf of any blood, J. Y. Vancil, ... 1 00
Best cow of any age, Paul Frick, ... 3 00
Best sucking colt, " " 1 00

Awarding committee.—Jno. Vancil, Geo. Kimmell, D. Green.

CLASS B.

HORSES.—THIRTY ONE ENTRIES.

Best 4 years and upwards, "Hercules," Bennett & Scott, ... Certificate and 5 00
Second best, T. J. Hess, ... 1 00
Best 3 year old stallion, Caleb Hartline, ... 2 00
Best mare of any age, Wm. Eaves, ... 3 00
Best three year old fidy, Alexander Hileman, ... 2 00
Second best 3 year old filly, Samuel Brown, ... 50
Best 2 year old filly, Ben. DeWitt, ... 1 00
Best 1 year old filly, Caleb Hartline, ... 1 00
Second best, Isaac Litter, ... 50
Best sucking colt, Caleb Hartline, ... 1 00
Best pair of match horses for harness, Geo. W. Otrich, ... 3 00
Best gelding, Timothy Goddard, ... 2 00
Best saddle horse, Daniel Kimmell, ... 1 00

Committee.—Cadworth Harrison, L. P. Wilcox, John Moreland, Needham Wyggs, Christian Hileman.

CLASS C.

SHEEP AND GOATS.—ONE ENTRY.

Best pair goats, D. H. Kendleman, ... $1 00

Committee—Edmund Davis, George Bean, Daniel Bevil.

CLASS D.

SWINE.—FOUR ENTRIES.

Largest hog of any blood, Ben. L. Wiley, ... 2 00
Best Bifield boar, Bennett & Scott, ... 1 00
Best Irish grazier sow, Bennett & Scott, ... 1 00
Best Berkshire boar, Stephen Goram, ... 1 00

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Best kind of corn, Ben. Vancil, ... $1 00
Best bushel of rye, " 50
Best bushel of barley, David Craver, ... 1 00
Best bushel of oats, Young J. Vancil, ... 50
Best bushel of red wheat, Jas. Norton, ... 1 00
Best bushel white wheat, Daniel Kimmell, ... 1 00
Best bushel millet, John T. Denning, ... 1 00

Committee.—Jacob Kendleman, John E. Naill, Daniel S. Davie, H. J. Walker, Willis Willard.

CLASS F.

POULTRY—ELEVEN ENTRIES.

Best pair of Shanghais, Jacob Hileman, first premium, ... $1 00
Second best, Henry Oswald, ... 50
Best pair Polands, Henry Oswald, ... 1 00
Best pair dunghills, George Vancil, ... 50
Best pair Spanish guineas, J. K. Walton, ... 1 00
Best lot bantams, Bennett & Scott, ... 50
Discretionary premium to H. Oswald, for lot of chickens, Shanghai and Poland, 1 00

Committee.—J. W. McClure, J. K. Walton, Henry Oswald, Jas. Walker.

CLASS G.

FRUITS.

Best bushel of apples, W. Willard, ... $1 00
Second best, Wm. Kimmell, ... 50
Best and greatest variety of apples, Jos. Norton, ... 1 00
Second best, N. B. Collins, ... 50
Best bushel of dried apples, Ben. Vancil, ... 50
Best Isabella grapes, very fine, W. Willard 1 00

Sigerson & Bro., of St. Louis, had on the ground 46 varieties of apples on exhibition, but not entered for premium..

Committee.—Joseph Norton, Ben. Vancil, J. Toler.

CLASS H.

MANUFACTURES, &C.—THIRTY-SIX ENTRIES.

Best two horse plow, Add Cruise, ... $[illegible]
Best one horse plow, David [illegible]

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Best quilt, Mrs. H. Oswald,	$1 00
Best coverlet, Mrs. J. Seeley,	1 00
Best ten yards jeans, home manufacture, Mrs. G. Hunsaker,	1 00
Best made shirt, Miss Emma Roberson,	1 00
Best pair wool socks, Miss Mary Wagoner,	50

Committee—A. G. Kimler, Paul Frick, John Rinehart, A. J. Nimmo, Joshua Roberts.

CLASS J.

PAINTINGS—NINETEEN ENTRIES.

Best painting in oil, J. H. Smith,	$1 00
Best water colors, Miss Lizzie Thornton,	1 00
Best pencil drawing, Helen Dougherty,	1 00
Best specimens in graining mahogany, J. Moyer,	1 00
Best artificial flowers, Miss Cordelia Marshall,	1 00
Best pair lamp mats, Miss Eva Kratzinger,	50
Best net tidy, Mrs. Evans, (70 years of age,)	1 00
Best tidies, Miss M. Oswald,	1 00
Best ottaman, Mrs. F. Willard,	1 00
Best card basket, Miss Louisa Frick,	50
Best needle work, (skirt,) Mrs. C. D. Finch, Cairo,	1 00
Best mahogany imitation, J. Moyer,	1 00

Committee—Hugh McVean and lady, Mrs. O. Benson, C. G. Simons and lady, John Great, James J. Hunsaker, Miss S. G. Noyes.

CLASS K.

FARM PRODUCTS—SIXTEEN ENTRIES.

Best honey, Sam. Hunsaker,	$1 0
Best Lima beans, W. Willard,	50
Best homemade soap, Mrs. D. H. Kendleman,	50
Best bushel onions, Ben. Vancil,	50
Best quince preserves, Mrs. J. Roberts,	50
Best cake, Miss Emma Roberson,	50
Best loaf bread, Mrs. Saml. Hunsaker,	1 00
Best ten pounds butter, Mrs. John Vancil,	1 00
Best pumpkins, Sam. James,	50
Best beets, Benj. Vancil,	50

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Best three years old jennet, R. S. Reynolds, ... $2 00
Best saddle mule, John Moreland, ... 2 00

Committee—Caleb Frick, G. W. Harris, J. V. Brooks, Thos. J. Finley, Larkin F. Brooks.

CLASS M.

MISCELLANEOUS ARTICLES—THIRTY ENTRIES.

Best wheelbarrow, John Rinehart, ... $1 00
Second best, Paul Frick, ... 50
Best lot hammers, J. Rinehart, ... 3 00
Best coffee dredge, J. Q. Searls 50
Fool puzzler, (in glass bottle,) Paul Frick, ... 50
Best tanned kip skin, J. C. Batson, ... 50
Sample of brick, H. G. Cline, ... 50
Best watermelon, J. S. Kendleman, ... 50
Second best, Calvin Tripp, ... 25
Best flour barrel, Jas. R. Lee, ... 25
Best gourds and citrons, Wilson Lingle, ... 25
Best lot turnips, J. Seeley, ... 25
Best three crochet collars, Miss M. Oswald, ... 50
Best embroidery, Miss E. Roberson, ... 1 00
Best homemade dress pattern, Mrs. C. Moore, ... 50
Best cotton cloth, Mrs. C. Moore. 50
Best piece home-made flannel, Y. J. Vancil, ... 50
Best panel door, B. F. Mangold, ... 1 00
Best piece cotton lace, Mrs. T. Cox, ... 50
Best and largest black bear, F. Shafer, ... 25
Best two horse cultivator, J. Norton, ... 50
Best barrel, Dishon & Standing, ... 50
Best barrel white wheat flour, Dishon & Standing, Cairo city mills, ... 2 00
Best daguerrean specimens, J. W. McClure, ... 50

Committee.—Jacob Grear, C. G. Flaugh, Isaac Tinsley, Benjamin F. Hunsaker, John B. Jones.

CLASS N.

PLOWING MATCH—TWO ENTRIES.

First premium, J. Hileman, ... $10 00

Committee—J. C. Hunsaker, Henry Mangold, James Craver.

Owing to want of time few entries were made; but the exhibition of many things was large and very splendid.

Sigerson & Bro., of St. Louis, exhibited fine specimens of winter and fall apples, embracing some 45 varieties, and a fine

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A collection of the relics of the aborigines found in the county, and on exhibition by W. Willard, excited the wonder and admiration of all.

The conchological collection of Dr. H. C. Hacker was well arranged and worthy the attention of the naturalist.

The geological cabinet of Dr. S. S. Condon, embracing, as it did, a great many curious fossils, besides a variety of minerals, &c., was very interesting.

Some fine grapes, both native and foreign, were on exhibition, and especially the Isabella, presented by Mr. W. Willard, proved conclusively that this region is well suited to grape culture.

I hope I may be permitted to say, that no finer collection of corn, wheat, barley, oats, &c., ever was brought together, and it will not be considered boasting to say that the sample of white wheat, to which was awarded the first premium, and which was raised by Daniel Kimmell, of this county, was sent to the state fair at Alton, and there received the first premium of $5 for best bushel wheat, and at the Mississippi Valley fair, at St. Louis, the same wheat was awarded the first premium of $10, showing that Mr. Kimmell is the best wheat grower in the west, at least, if not in the world.

The temple of art, filled with choice paintings, in oil and water colors, beside the splendid collection of watches and jewelry, of Messrs. Grear & Co., attracted the attention and admiration of all, as was evinced by its being filled from morning until night, by crowds.

In a word, nothing occurred to mar the pleasure of the vast assembly—not an accident of any kind.

The premiums were given out from the stand, by the president, and all left for home, fully determined to do even better next year.

The society numbered 250 members, and there was taken in at the gates some $500 for entrance fees—added to the amount for membership—making some $750; which was amply sufficient to

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NOTE.—We had bears, foxes, raccoons, opossums, rattlesnakes, squirrels, rabbits, &c., on exhibition, which I forgot to notice in the proper place. S. S. C.

WABASH COUNTY.

McLEARY'S BLUFF, WABASH COUNTY,
March 4th, 1856.

DR. JOHN A. KENNICOTT,

Corresponding Secretary Ills. State Agricultural Society:

DEAR SIR—Annexed please find preamble and resolutions passed at a meeting of the Wabash County Agricultural Society, on March 3d inst.

I remain yours, respectfully,

JOS. C. ORTH, *Corresponding Secretary.*

Whereas it is a known fact that the holding of the fairs of the state agricultural society has done much towards infusing a spirit of enterprise and emulation over the entire state, but more particularly so over a section of country immediately around the location of such fair; and whereas Southern Illinois, by nature blessed with a superior soil and climate, and abounding in all the elements of true wealth and greatness, is still in the back ground in many of the developments of her natural fertility and internal greatness, owing mainly to the apathy and want of enterprise of her inhabitants; therefore,

Be it resolved, That in the opinion of the members of this society much good would result to the agricultural interests of the state at large, but more particularly to Southern Illinois, by the holding of the next state fair at some southern and easily accessible point, by enabling the farmers of that section of the state to visit the fair and witness an exhibition to them of much interest, but of which they have heretofore been deprived, by being too far removed from them.

Resolved, That we express our decided preference in favor of holding the next state fair at Salem, in Marion county.

Resolved, That a copy of this preamble and resolutions be communicated to the corresponding secretary of the Illinois State Agricultural Society.

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Wesley—J. Frazer, D. Willard, A. Warner.
Reed—J. Killpatrick, M. T. Tilden, H. Campbell.
Wilton—J. M. Kibbon, W. T. Nelson, H. Kelsey.
Jackson—Geo. Linebarger, J. Sawyer, J. Yumwalt.
Florence—J. Linebarger, W. W. Monteith, J. Shoemaker.
Trenton—S. E. Bowen, Clark Baker, E. Bailey.
Rockville—J. C. Martin, M. Forbes, M. Shreffler.
Sherburne—J. Hamilton, R. Segar, E. Hathaway.
Bourbonais—D. Van Meter, N. Vesseur, J. W. Smith.
Momence—N. Messenger, J. Perry, W. A. Chatfield.

The first fair was held at Joliet, October 6th, 1852. As a first effort, it was very good, and in some of the departments the exhibition would compare favorably with any other county in the state. The annual address was delivered by Judge G. D. A. Parks. At this fair the officers for the ensuing year were chosen, viz:

President—Robert Stevens, Joliet.

Vice Presidents—Leander Hamlin, J. Shoemaker, B. F. Russell and D. Van Meter.

Secretary—D. C. Young.

Assistant Secretary—R. E. Barber.

Treasurer—Benjamin Richardson.

The members of the executive committee were unanimously re-elected.

The second annual fair was held on the 5th and 6th of October, 1853, at Lockport. The annual address was delivered by G. A. Gooding, esq. A short notice of this fair, taken from the Lockport Telegraph, accompanied, also, by extracts from Mr. Gooding's address, will be found by referring to page 265, of first volume of Transactions Illinois State Agricultural Society. At this fair the officers elected by the society, for the coming year, were:

President—Leander Hamlin, Plainfield.

Vice President—Hiram Norton, Lockport.

Secretary—R. E. Barber, Joliet.

Treasurer—Benjamin Richardson, Joliet.

Executive Committee—

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Du Page—H. Boardman, R. W. Smith, J. L. Alexander.

Homer—R. Jennison, A. Collins, George Garden.
New Lenox—J. C. Kercheval, William Ferguson, P. Link.
Frankfort—J. W. Smith, A. Dewey, William Blaisdell.
Manhattan—John Young, Clark Baker, M. Berrigan.
Green Garden—J. N. Bemis, J. M. Green, C. Pettys.
Carey—Jesse Bickel, Wm. Pollock, S. W. Cooper.
Crete—A. Wilder, E. W. Beach, Willard Wood.
Wilton—W. T. Nelson, L. O'Conner, H. Harvey.
Florence—R. H. Nott, W. W. Monteith, S. Morey.
Wesley—H. Warner, Wm. Goodwin, John Ritchey.
Reed—T. T. Tilden, J. Killpatrick, Wm. McGinnis.
Wilmington—F. Mitchell, P. Stewart, N. N. Osborne.
Jackson—Wm. Cotton, Geo. Linebarger, S. Johnson.
Troy—J. T. Randall, J. Dillon, C. Thornton.
Channahan—P. McCowan, —— Daily, J. O. Knapp.
Joliet—Robert Stevens, Wm. Hadsall, D. Richards.

The third annual fair of this society was held at Lockport, 12th and 13th October, 1854. The weather, on both of these days, as well as on the one previous, was very unfavorable, being rainy. The attendance was not so large as usual, nor the display of articles or animals so extensive as the year before. There were, however, many fine horses, cattle, sheep and swine exhibited, with numerous coops of fowls of the finest varieties. The display of agricultural implements was rather limited, though what were shown were of the finest finish, and reflected great credit upon the mechanics who produced them. The ladies' department was not so well represented as on similar occasions; but many beautiful specimens of their skill and ingenuity adorned the hall of exhibition. Hon. S. W. Randall delivered an address to the society.

At the close of the exhibition the society proceeded to the selection of officers, which resulted in the choice of the following named gentlemen:

President—A. S. Anderson, Lockport.

Vice President—John Young, Manhattan.

Secretary—B. F. Russell, Homer.

Treasurer—Benj. Richardson, Joliet.

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was by far the largest that ever came together, on any occasion of the kind, since the organization of the society. The display in every department, with one or two exceptions, was superior to any of our former fairs; but still not what our county should do, possessing such ample material as she does for making a splendid exhibition.

The entries at this fair were as follows:

Of horses, 47; mules and asses, 7; cattle, 59; sheep, 40; coarse manufactured articles, 45; hogs, 2; coops of fowls, 5; fruit, 7; garden vegetables, 10; dairy produce, 9; flowers, 7; ladies' work, 65; ornamental pictures, daguerreotypes, &c., 17. Total, 320.

There were numerous animals and articles exhibited on the grounds and in the hall, which were not registered; and, consequently, did not compete for premiums.

It is worthy of remark, that nearly all of the cattle registered were of the finest breeds, embracing the finest of the herds of Geo. Barnett, Robert Milne and others. The sheep exhibited were but samples of the many numerous fine flocks of French and Spanish merinos, of which this county can boast. The great number of fine horses exhibited called forth expressions of surprise and admiration, both from strangers and residents. The mechanical department of this county, though it was not represented in all its varied branches, was well sustained in all the coarser and heavier work, such as farming implements, wagons, carriages, buggies, &c. In this line of business our county is second to none, and the many beautiful specimens of shop work exhibited convinced every beholder that the mechanics of Will county are perfect masters of their trades. The principal exhibitors of buggies, wagons, &c., were Phillips & Waterman, of Lockport. Of farmers' implements, John Lane, jr., Lockport; Cagwin & Jones, Joliet; and Shreffler & Vandersoll, Plainfield.

The large number of ladies in attendance, with the various samples of domestic and fancy work, by them exhibited, testified in

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President—John Young, Manhattan.

Vice President—Alvah Culver, Plainfield.

Secretary—R. B. Harrington, Lockport.

Treasurer—Benj. Richardson, Joliet.

An executive committee was chosen, as follows:

Wheatland—Alonzo Ray, A. S. Thomas, Geo. A. Wheeler.
Du Page—A. C. Paxon, R. W. Killmer, R. G. Freeman.
Plainfield—Cyrus Ashley, E. J. Wood, Joel Dillman.
Lockport—Warren Hawley, Geo. Mess, Jacob Smith.
Homer—A. G. Rowley, A. B. Brooks, Ira Austin.
Jackson—D. B. Cagwin, Geo. Linebarger, E. B. Crafts.
Crete—Merril Kyle, William Hewes, Wilson Phelps.
Wilton—Wm. Nelson, David Dancer, J. Harvey.
Florence—J. Shoemaker, N. N. Osborne, S. Morey.
Washington—Joseph Waite, Aaron Johnston, John Sollett.
Joliet—Wm. Hadsell, H. D. Higinbotham, D. C. Young.
Reed—R. S. Noble, Wm. McGinnis, T. T. Tilden.
New Lenox—J. C. Kercheval, Wm. Gouger, Abram Francis.
Frankfort—Chauncey Carpenter, W. B. Owen. W. B. Cleveland.
Manhattan—Clark Baker, Martin Berrigan, Hiram Olney.
Green Garden—G. M. Green, A. A. Angel, Noah Johnston.
Carey—Geo. Baker, S. W. Cooper, G. W. Gaines.
Wilmington—Peter Stewart, A. J. McIntyre, A. W. Bowen.
Troy—C. Thornton, B. Vanallstyne, H. G. Moore.
Channahan—Peter McCowan, J. B. Schermerhorn, H. Althouse.
Wesley—Harvey Warner, E. W. Jones, John Frazer.

I am yours respectfully,

R. B. HARRINGTON.

☞ Besides the encouragement given to the societies, I find there is a benefit conferred on publishers, manufactures, etc., by giving local lists of active and intelligent agriculturists.

J. A. K.

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WINNEBAGO COUNTY.

all circumstances. From another source, we are informed that the number of entries was 831. Total receipts $2,000—against 680 entries, and about $1,000 receipts, the year previous.

Since writing the above the following notice has been found in the Prairie Farmer, and we conclude that the managers had discovered the fact, in regard to the time of holding the state fair, and altered their own appointments accordingly:

We have received the list of premiums, with the names of awarding committees, for the third annual fair of the Winnebago County Agricultural Society, to be held in the city of Rockford, the last week in September, 1856. Exhibition days—Tuesday, Wednesday and Thursday, September 23d, 24th and 25th.

The officers of the society are—

President—H. P. Sloan, Winnebago.

Vice President—Horace Starkey, Butler.

Secretary—Robert Ogilby, Rockford.

Treasurer—H. R. Enoch, Guilford.

Corresponding Secretary—E. W. Blaisdell, jr., Rockford.

Recording Secretary—M. B. Derrick, Rockford.

Directors—Robert J. Cross, Roscoe; R. H. Saunders, Lysander; Horace Miller, New Milford; Milton Kilburn, Rockford; Lewis Owen, Owen.

Committee on Stock, Farming Utensils, Carriages, Wagons, &c.—Horace Miller, R. H. Saunders, Milton Kilburn.

Committee on Domestic Manufactures—Horace Starkey, Lewis Owen, Robert Ogilby.

The committee on stock and domestic manufactures constitute the executive committee.

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ILLINOIS STATE HORTICULTURAL SOCIETY.

PROCEEDINGS OF THE CONVENTION FOR THE ORGANIZATION OF THE ILLINOIS STATE HORTICULTURAL SOCIETY.

DECATUR, MACON COUNTY, ILL., December 17, 1856.

Pursuant to the call of a committee appointed for the purpose, at the last meeting of the Illinois State Agricultural Society, a meeting of the friends of horticulture was convened this day.

The convention was called to order by the Hon. M. L. Dunlap. Hon. D. J. Baker, of Alton, was chosen chairman, and C. R. Overman, of Bloomington, secretary.

The chairman, in an appropriate and spirited address, explained at length the object of the meeting, the necessity for the organization of a state horticultural society, and the cheering prospects which were before those who embarked in the cause.

Dr. E. S. Hull, of Alton, moved that the chair appoint a committee of five to draft a constitution and by-laws; which was adopted. Whereupon, the chairman announced the following gentlemen as said committee: Dr. E. S. Hull, Hon. M. L. Dunlap, Hon. L. Ellsworth, J. E. Starr and Dr. H. C. Johns.

Dr. B. F. Long, of Alton, moved that the chairman appoint a committee of three persons to prepare business for the convention. Approved. The chairman appointed J. Atwood, of Alton; L. Starr, of Fremont; and O. B. Galusha, of Lisbon, said committee. The committee retired, and the convention informally discussed the merits of different varieties of fruit. The meeting then adjourned to 2 o'clock, P. M.

Convention met, pursuant to adjournment.

The committee on constitution and by-laws made a report; which was accepted, and the committee discharged.

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of Du Page; N. Overman, of Fulton; S. Shaw, of Tazewell; W. H. Mann, of McLean; O. B. Galusha, of Kendall; and Wm. Stewart, of Adams, were appointed said committee.

The committee having retired for the purpose, returned with the following report:

For President—E. S. Hull, of Alton.

For Vice Presidents—R. W. Hunt, Naperville, second district; F. R. Phœnix, Bloomington, third district; L. Shaw, Fremont, fourth district; S. Francis, Springfield, fifth district; Wm. Stewart, Payson, sixth district; Dr. Kile, Paris, seventh district; J. P. Reynolds, Salem, eighth district; A. Bainbridge, Jonesboro, ninth district.

Recording Secretary—J. E. Starr, Alton.

Corresponding Secretary—O. B. Galusha, Lisbon, Kendall county.

Assistant Recording Secretary—F. R. Phœnix, Bloomington.

Treasurer—B. F. Long, Alton.

The report was accepted, and the gentlemen named were, on motion, duly elected to the offices for which they were nominated.

The president, Dr. E. S. Hull, then took his seat and returned his thanks for the honor conferred upon him. He felt that this day a new era in horticulture had commenced—the fiat had gone forth that the people should be aroused to a subject so replete with interest, one which appealed to their sense of the beautiful, one which appealed to them pecuniarily; indeed, one which stood scarcely second to any other interest in our state. He felt proud to be the humble instrument in the hands of others to aid in carrying out this work.

Upon motion of Dr. B. F. Long, the secretary was authorized to procure the necessary books and blanks for the use of the officers of the society. O. B. Galusha, from the committee to prepare business, presented the following report; which was approved:

The committee to prepare business would recommend the appointment of a committee to prepare a memorial to be presented

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Also, a committee of one, to draft a manifesto, setting forth the object of this association, and its claims upon the friends of horticulture throughout the state.

On motion of L. Ellsworth, the corresponding secretary, O. B. Galusha, was selected for that purpose.

On motion of C. R. Overman, the committee to prepare manifesto was instructed to send a copy of this manifesto to all the papers in the state, requesting them to publish the same. O. B. Galusha moved that the president appoint a committee of five, to examine fruits presented to the society at its present meeting. The president appointed H. P. Penniman, M. L. Dunlap, C. R. Overman, L. Ellsworth and H. C. Johns that committee.

On motion of D. J. Baker, the president was added to that committee. The committee, having proceeded with their examination, reported as follows:

Dr. B. F. Long, of Alton, presented a quantity of fruit for examination. Newtown Pippin decided true. Has not succeeded well north. Dr. Long says: A medium bearer, slow coming into fruit; second only to Lady Apple in price; keeps until March. President says: Early bearer; keeps, without decay, until May, in cool cellars. Best single variety for latitude of Alton.

Winter Wine—Distinct from Wine or Wine Sap.

Deep Red—Showy; size small. Dr. Long says: Productive, bears regular, best in quality. Committee say only good.

Rawles' Jane—True. Dr. Long says: Enormous bearer; requiring thinning; the most popular winter apple, with proper attention to thinning. Committee coincide.

Gilpin, or Small Romanite—Good for baking and cider, and will always sell in the spring.

Milam Apple—True. Great bearer; third quality; small.

Pryor's Red—True. Late fall and early winter; productive, and profitable for market.

Lady—True. Late coming into bearer; commands high price in market.

Winter Greening—Dr. Long says: Great bearer; does not like it; never ripens well; will re-graft in the spring.

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A. & F. Starr, of Alton, presented:

White Bellflower—true—best; *Yellow Bellflower*—true—very good; *King of Alton*--worthless; *Red Canada*—true. President says: Best early winter for latitude of Alton. *Winesap*—true. One of the most valuable winter apples; quality best; very productive thoughout the state; hardy. The report of the committee was then approved.

On motion of L. Ellsworth, it was resolved, that the president be requested to apply to the officers of the different railroads in the state for free passes for the use of the executive committee and officers of the society, to be by them used only when traveling on business of the society.

On motion of J. E. Crandall, the secretary was ordered to furnish each member of the society, present at the meeting, a certificate of such attendance.

On motion of Dr. Long, the corresponding secretary was instructed to apply to the Smithsonian Institute for information touching the climate, temperature and geology of our state, and also for a copy of the meteorological table.

L. Ellsworth moved that the members of the society, as far as possible, keep a record of the temperature, changes of the atmosphere, and course of the wind, together with the effects upon trees, plants, fruits, &c., and report the same to the society from time to time. Adopted.

On motion, the convention adjourned until to-morrow at 9 o'clock, A. M.

Decatur, December 18, 1856.

Convention met, pursuant to adjournment.

The president read a letter from A. Bainbridge, of Jonesboro, accompanying scions of the White Winter Pearmain and Buckingham Apples.

This introduced the subject of the best method of keeping scions. C. R. Overman was called for, and responded by saying that he had heard or read of and had met with partial success in all. They must be kept fresh to succeed well. The best plan, so far as he had tried, was to cut scions as early as admissible in the fall; then dig a hole in the ground, selecting a dry spot; in this place a box, in which put the scions, covering first with straw and

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rines on roots, but did not succeed well. Used the roots of one year's growth. Has had poor success in grafting pears on their roots. The roots of one year old Virginia Thorn he had found to do well for dwarfing the pear.

Dr. Haskell cuts scions with the leaves on, and keeps them well by closely packing them in bulk. Has cut the scions at all times of the winter; if frozen he thaws them out carefully. Thinks the grafts from frozen scions do not do well.

L. Ellsworth was next called upon. Keeps his scions in a cellar by planting the butts in sawdust; do well if kept cool; best time to cut was just as the leaves were dropping; has cut at all times; if frozen must be thawed before using; the frost must be taken out by placing the scions in cool water, or by burying in the earth.

O. B. Galusha had tried different methods; now uses a box closely packing them until nearly full; puts then a few strips to secure them firmly in their place; then having dug a hole in the ground, turns the box over into the hole, and throws on some straw and dirt to keep them from the frost.

M. L. Dunlap uses sawdust just from the logs; kept cool and ventilated, but not allowed to freeze; should be cut in November and December. Germinal bud grafts succeed as well as side bud grafts, if mature. The side shoots of nursery trees are generally mature, if not cut back to a sound bud; frozen scions should be thawed out gradually.

Grafting the one year old Mazzard Cherry.—This operation, as described by Hon. M. L. Dunlap, differs from the ordinary method of splice grafting, in the more perfect manner in which it is effected. With a sharp knife sever the stalk, with a smooth sloping cut upwards, so that such point will exactly correspond in size with the graft, and a similar slope downwards on the scion; place the two together, so as to make a perfect fit; then, with a strong linen thread previously secured to a button hole in the vest, take the end of the thread in the right hand and proceed to bind very firmly the graft to the stock, holding the scion and stock with the left hand to prevent slipping. Having tied the ligature, or, rather, having drawn the end of it down between the graft and stock, which was been left a little open at the top to receive it, with

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leaves are formed on the graft. It will then be proper to cut the thread, which, up to this period, held the stock and scion in contact. The more perfect success of this mode of grafting stone fruits, particularly the cherry, over the ordinary modes hitherto practiced, is attributed to the close contact in which the parts to be united are held, and to the partial obstruction of the sap along the edges, causing the parts to cicatrise in a few days.

In answer to a call, Dr. Hull stated that the grafts of the peach, embracing a portion of the two years' old wood, could be successfully inserted either in the peach or plum stocks by cleft grafting, thereby making it practicable to send grafts of new and desirable sorts to distant places for spring use. The current year's shoots, when large and very fine, would sometimes succeed. He had seldom failed to secure a perfect union of the stock and graft when a portion of the two years' old wood was employed.

Dr. Long desired to know how grafts intended for distant places should be packed to prevent their shrivelling or becoming too dry.

Dr. Hull—First cut into convenient lengths, then immerse the cuttings in a thin solution of gum shellac, dissolved in alcohol; then carefully wrap each scion in cotton, to protect it from bruising. It may then be sent to any part of the country in good condition.

C. R. Overman had practiced covering the grafts with warm wax. His grafts usually arrived in fine order.

M. L. Dunlap, by request, went into a minute practical description of a process of root-grafting the peach, which, so far as tried, he had found to be quite successful. He used firm and well matured shoots, cut them with convenient length to transplant well. These pieces of root are split from the side, nearly through, so as to leave the bark entire on the opposite side. Having cut the graft wedging both ways, it is laid into the root and firmly bound, waxed, and the treatment in other respects the same as for root-grafted apple trees. He believes that this kind of grafting will, when better understood, be generally practiced in the propagation of peach trees.

On motion, the *ad interim* committee was nominated and elected: L. Ellsworth, Naperville, Du Page county; F. R. Phœnix, Bloomington, McLean county; A. R. Whitney, Franklin Grove,

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On motion of L. Ellsworth, Messrs. Star, Hull and Barry, of the *ad interim* committee, be the committee to whom all reports must be sent, and that three members of said committee should constitute a quorum.

L. Ellsworth moved that the thanks of the society be and are hereby gratefully tendered to Dr. H. C. Johns, of Decatur, for his services in procuring a place of meeting for the society, as well as for his courtesy and attention to our wants. Adopted.

C. R. Overman moved that an order be drawn in favor of the president for the amount he may be called upon to pay for printing half fare tickets. Adopted.

J. E. Starr moved that each member use his influence in obtaining members, and that he forward the names and fees to the recording secretary. Adopted.

Adjourned, *sine die.*

JAMES E. STARR,
Recording Secretary.

CONSTITUTION, BY-LAWS AND NAMES OF MEMBERS OF THE ILLINOIS STATE HORTICULTURAL SOCIETY.

The following is the constitution and by-laws reported and adopted by the meeting:

CONSTITUTION.

This society shall be known as the Illinois State Horticultural Society.

The officers of the society shall consist of one president, nine vice presidents, one corresponding secretary, and one assistant recording secretary, one treasurer and an executive committee.

The society shall hold an annual meeting, for the purpose of transacting business, at the city of Springfield, on Wednesday after the first Monday in January.

The vice presidents of the society shall be chosen, one from

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BY-LAWS.

The president shall preside at all meetings of the society and of the executive committee, but shall have no vote at meetings of said committee. He shall have power, with the concurrence of any three members of the executive committee, to call special meetings of the society and the executive committee.

The corresponding secretary shall attend to all the correspondence of the society, and shall perform such other duties as may be required.

The recording secretary shall record all the proceedings of the society and of the executive committee.

The assistant recording secretary shall assist the recording secretary in the duties of his office.

The treasurer shall keep the accounts, and present annually a statement of all receipts and expenditures, and for what expended. He shall pay out no moneys except upon presentation of an order signed by the president and recording secretary.

The officers shall be elected at the annual meeting in January, and shall hold office for one year, or until their successors shall be elected.

The society shall hold one annual exhibition, at such time and place as the executive committee shall designate.

Five members of the executive committee shall constitute a quorum for the transaction of business.

There shall be an *ad interim* committee of eleven members, whose duties it shall be to report at the annual exhibition of the society upon all specimens of fruits, flowers and other horticultural products that may be sent them by any member of the society during the recess.

The *ad interim* committee will report minutely all facts connected with the objects presented, so far as they can be readily ascertained.

NAMES OF MEMBERS.

E. S. Hull, Alton, Madison county; L. Shaw, Tremont, Tazewell county; F. Starr, Alton, Madison county; B. F. Long, Alton, Madison county; M. L. Dunlap, Leyden, Cook county; W. H.

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county; R. W. Hunt, Naperville, Du Page county; Lewis Ellsworth, Naperville, Du Page county; Geo. Barry, Alton, Madison county; Wm Stewart, Payson, Adams county; J. E. Crandall, Chicago; N. Overman, Canton, Fulton county; D. J. Baker, Alton, Madison county; H. E. Newton, Moline, Rock Island county; A. S. Barry, Alton, Madison county; Henry Oswald, Jonesboro, Union county; D. S. Allen, Decatur, Macon county; Allen Bainbridge, Jonesboro, Union county; J. E. Starr, Alton, Madison county; Elijah Frost, Godfrey, Madison county; John P. Reynolds, jr., Salem, Marion county; Chas. B. Pelton, Jonesboro, Union county; Wm. Kile, Paris, Edgar county; S. Francis, Springfield, Sangamon county; Charles Kennicott, West Northfield, Cook county; Cyrus Webster, Salem, Marion county; Jos. Miller, Alton, Madison county.

ANNUAL MEETING OF THE EXECUTIVE BOARD.

The executive committee of the Illinois State Horticultural Society assembled in the city of Springfield, on the first Wednesday after the first Monday in January, 1857—being the time prescribed by the constitution for the annual meeting of the board.

Present—

President—Dr. E. S. Hull.

Executive Committee—Dr. Wm. Kile, Paris; John P. Reynolds, Salem; W. C. Mann, Bloomington; S. Francis, Springfield; R. W. Hunt, Naperville.

The meeting was called to order by the president, and R. W. Hunt was chosen secretary, *pro tem*.

The constitution, by-laws and proceedings of the convention held in Decatur, were called for, read and approved.

After reading the minutes, the president addressed the committee. He said he was happy to meet so many intelligent gentlemen here, from distant sections of the state. They had found their way hither at their own expense, while the committee on agriculture were provided with free passes. This was not as it ought to be, and he hoped hereafter that the railroad companies

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trol of the society, at the head of which should be placed some person possessing such horticultural attainments as the duties of his office should require, and make it his duty, among other things, to collect, receive and propagate scions of new and valuable fruits and other horticultural products, and report upon the same, together with the name and residence of the owner. He should be a member of the committee, *ad interim*.

Thousands of dollars are annually lost to the state for the want of specific information, which could only be obtained through a system of experiments, directed by scientific knowledge. It was seriously felt by our farmers, nurserymen and gardeners. Neither the horticultural nor agricultural periodicals, nor societies, nor individual enterprise, now in operation, are deemed sufficient for all that is desirable. To facilitate the introduction of any new and estimable product, originating in other states, our corresponding secretary had been instructed to open a correspondence with kindred local organizations, requesting them to forward to this society grafts of valuable seedlings, found in their several localities.

The president's grounds were open to the introduction and for the propagation of new fruits, which, if received, would be grown and distributed to the members of the society, free of charge, or until they could establish a garden of their own.

The president concluded his remarks by stating other business that would require the action of this board at this time.

On motion of S. Francis, the following was added to the by-laws: "The executive committee may, at any regular meeting of the society, admit honorary members, by an unanimous vote."

On motion, Prof. J. B. Turner, of Jacksonville, was elected an honorary member of the society.

On motion of S. Francis, the president and members of the central committee, *ad interim*, were authorized to fix the time and place for holding the first fall or annual fair of the society, and prepare a premium list for the exhibition.

On motion of R. W. Hunt, the president was requested to make application to the superintendents of the several railroad companies in the state, to pass a committee of one over their respective roads, free, for the purpose of collecting scions of the different varieties of seedling fruits and other horticultural objects, with a view of disseminating the same.

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On motion of S. Francis, the following was added to the by-laws of the society: "That all fruits, flowers, and vegetables, entered for competition, shall be considered the property of the society."

On motion of J. P. Reynolds, R. W. Hunt was chosen a committee of one to examine into and report to the society, at its next meeting, the advantages and practicability of establishing a horticultural garden and nursery, to be under the control of the society, together with some plans of construction and operation.

On motion of S. Francis, the president was authorized to fix the time and place for holding the spring exhibition, and to prepare and publish a premium list for the same.

On motion, the society adjourned, *sine die.*

E. S. HULL, *President*

R. W. HUNT, *Secretary, pro tem.*

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THE AGRICULTURAL RESOURCES OF SOUTHERN ILLINOIS.

By John Reynolds.

CHAPTER I.

THE SOIL, SURFACE, AND AGRICULTURAL CAPACITIES OF SOUTHERN ILLINOIS.

The southern section of the state of Illinois is bounded on the east by the Wabash and Ohio rivers, and on the west by the Mississippi. The southern extremity, the mouth of the Ohio, is considerably south of latitude 37 degrees north, and Southern Illinois extends north about two degrees, according to recent public opinion. This tract of country will embrace thirty counties or more, and its northern limits may extend across the state from about Alton, east, to the Wabash river.

The climate of this section of Illinois is most delightful and salubrious, and the air, for the most part of the year, breathes a balmy sweetness and fragrance that is not enjoyed in any other section of the state. South Illinois is blessed with a happy location, almost in the centre of the United States, and also in the centre of the Mississippi valley, which secures to this section great advantages of commerce. Most of the large rivers of the west concentrate at and near this peninsula, which will add greatly to its commercial wealth.

This tract of country enjoys much of the climate of "the sunny south," where the winters are mild and short and the summers are not scorched with a tropical sun; but an agreeable and pleasant temperature prevails the whole year round.

The soil of South Illinois is exceedingly strong and fertile, and produces in great abundance all the crops which are congenial to the climate.

Geologists contend that the extraordinary quantity of fertile soil

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covered with water. The great depth and strength of the alluvial soil, and many other indications, make it almost manifest to my mind that all the vast valley between the great mountains, to the east and west, was once a sea of water, which gradually subsided, leaving the valley a great flat of *alluvium*. The streams found the valley a vast plane, and occupied it to drain their waters to the ocean, as it suited their convenience.

Not only is it strange how so much soil accumulated in the west, but another phenomenon is presented by discovering wood, brushwood and the bark of trees many feet—sometimes one hundred or more below the surface. In some sections of the state, in digging wells, a "second soil," so called, is found about eighteen or twenty feet below the surface, wherein wood, tree tops and bark of trees are imbedded in a black soil similar to the upper.

Another curiosity is the boulders, or "lost rocks," as they are frequently called, which are found on the surface of the earth in the middle and northern sections of Illinois. These are granite rocks, and all agree that they had not their origin in Illinois, but were conveyed here by some agent of nature.

It is also stated, that potters' ware vessels, made of clay, have been discovered and brought up from many feet below the surface, in various places of the west.

These facts must bewilder geology, and leave the human mind in darkness on the subject of the formation of the crust of the earth. Is it possible to fathom the operations of nature, to ascertain the manner of producing these wonderful phenomena on the surface of the earth?

Large trees are frequently found in the Mississippi bottom covered with earth many feet below the surface; but they are deposited there by the inundations of the river, and, in the course of time, the water abandons them. The earth is washed over them, and they remain there for ages. But the wood and bark of wood above mentioned are found on the high lands, clear of any influence of the rivers; and it seems to me that the operations of na-

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be cultivated in some manner and by some profitable crop, except the stagnant pools that stand some part of the year in the bottom lands of the rivers. In some few sections of South Illinois there are elevations that might be entitled to the name of hills, but not so high or so barren but that they would answer some valuable purpose to the agriculturist. I have traversed this section of the state often, ever since the year 1800, and know it well. Almost the entire country may be cultivated in grain fields or profitably employed in pastures, meadows or orchards. Most of the bottom lands of the Mississippi are situated within South Illinois, and will, when properly drained, be the most productive lands in the state. The "American bottom," so called from a settlement of Americans locating there in the year 1781, extends about one hundred miles, from Alton, in Madison county, to Chester, in Randolph county, and will average at least five miles in width. This tract of country is known all over the states for the fertility of its soil. Much of the Mississippi low lands, below, are equally fertile as the American bottom, and will, when improved, present to the agriculturist one of the most productive tracts in the Mississippi valley.

At long intervals, the floods of the Mississippi inundate these bottoms. In 1725, a great inundation of the American bottom occurred. In the year 1770 another of less depth visited the bottom, and two years thereafter, in the year 1772, a great rise in the river overflowed the whole bottom. This flood tore away part of Fort Chartres, (situated on the Mississippi, twenty miles above Kaskaskia,) and thereupon the English garrison moved to the last named village. The next extraordinary flood occurred in the year 1785, and was the next to the highest ever known in the Mississippi. I have often seen the marks of the high water of 1785 on the houses in the French villages, for many years after we settled in Illinois, in 1800. The next inundation was in the year 1844, and was some higher than that of 1785. The height of the flood in 1844 is marked on a stone monument, erected on Water street, in the city of St. Louis, and exhibits a terrific flood, rushing over the whole bottom, from bluff to bluff. Since my observation, there have been many small rises in the river, that

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then add greatly to agriculture in this section of the state. The bottoms of the Cash river are extensive, and will be well adapted to the growth of hay. At some day South Illinois will be the most beautiful and most productive section of the state.

In many parts of South Illinois, fine springs of perpetually running water break out of the earth, and add much to the beauty and advantage of the country.

In this section of Illinois the surface is more undulating than in the north, and beautiful streams of water abound.

About eight counties only, in the extreme point, are destitute of prairie, and are covered with the finest timber of the same class in America. The timber that grows in South Illinois is not surpassed in the Union by the same species. There is no pine or hemlock in this section of country; but cypress grows in great quantities, and near Jonesboro red cedar is not uncommon. The most common growth are the oaks of all species, walnut, poplar, beech, cypress, cottonwood, hickory, pecan, sassafras, and others of less note.

It is the thick, dense forests that have heretofore to some extent prevented the more rapid growth of this beautiful section of country. In former days, when the timber was not needed, it was exceedingly costly to clear away the dense forests and prepare it for cultivation. But at this day the timber is in good demand, which will lessen the expense of preparing the land for cultivation. Since the Central railroad is constructed, and the country north is improved, so that lumber is in demand, great quantities of this valuable timber is sawed into lumber, and sold at high prices. These movements will advance the south, and a few years will present this tract of country in its true light.

I am of opinion that the *prairies* have advanced Illinois forty or fifty years over a timbered country. It requires time and great expense to clear away a heavy forest and prepare it for cultivation, while the prairies are always ready for the plow.

In South Illinois there are many mounds of earth, which trou-

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Mr. Hill, the owner, is erected on it. On the northeast corner is a grave yard, but not of the ancient date of the mound. On the south side is a bench, or a level, of some hundred feet, and extending east and west the whole length of the *tumulus*. This bench reminds us of the second story of a building.

On one side is a well, dug by Mr. Hill, where it is said the layers of the earth, in making the mound, could be discovered. It is rather my conclusion, that these earthen pyramids are the work of man.

In the vicinity of this large mound there are many others in the American bottom, numbering fifty or sixty in all, perhaps, and of all shapes and sizes, down to small *tumuli* of earth. It is stated that more mounds exist in this region, near the mouth of the Missouri river, than in any other section of the west.

Three earthen pyramids still exist in this neighborhood, that lay much claim to man for their erection. They occupy a kind of triangle, one in Missouri and two in Illinois. They are all erected on the bluffs of the Mississippi, and appear to be intended to sustain beacon lights, to give alarm in case of danger.

The lowest down the river is in St. Clair county, about six miles from Cahokia. The French gave it the name of *Prairie du Sucie*, or sugar loaf, which in olden time was a celebrated place. Another mound is also erected on the high point of the bluff in Madison county, and is called by the French *La Mammalle*, a teat. The third is raised on the high bluff in St. Charles county, Missouri, and was also called by the French, *La Mammalle*. It is supposed that these mounds were intended to sustain beacon lights, to give the alarm if the country was in peril. I have been on two of them, and it appears to me they are the work of man.

A singular mound is situated a few miles north of Lebanon, in St. Clair county, and is of considerable elevation, and I am informed, constructed on the cardinal points. It is an oblong square.

I saw an ancient fortification, as it is presumed to be, in the county of Pulaski, near the Ohio river. Some acres were embraced in the walls of earth yet visible, and large trees are growing in it. It had gateways to the river, and one back to the north. I am almost certain that this mound was made by hand, and for a fortification.

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These reflections will draw the mind to the conclusion, that the earth is ancient beyond all human computation, and is the same, as to human intelligence, as if it was eternal—without beginning or end.

CHAPTER II.

THE FIRST FRENCH SETTLEMENTS AND THE FIRST FRENCH AGRICULTURE IN SOUTHERN ILLINOIS.

Religious altars, Kaskaskia and agriculture commenced together in the American bottom, in the same year, 1682, that Philadelphia was laid out, one hundred years before any permanent settlements were made in either Kentucky or Tennessee, and twenty-eight years before New Orleans existed.

The villages of Cahokia and Peoria commenced their existence about the same time and manner with Kaskaskia, and those then French villages formed the nucleus of the first colonies established west of the Allegheny mountains. Fort Crevecœur was erected, by La Salle, on the northern bank of Peoria lake, one mile and a half above the present city of Peoria, some few years before the colonies were established, and the Rock Fort, or Fort St. Louis, was established, soon thereafter, on the "Starved Rock," which is situated on the south side of the high rocky bluff of the Illinois river, about six miles southeast from the present city of La Salle. These forts were garrisoned, for some years, by French soldiers, to secure the Indian trade, and to keep possession of the country.

A missionary, the Rev. Allowes, a Jesuit priest, located in the Indian village on the exact site where old Kaskaskia now stands, and commenced to christianize the natives. The Rev. Mr. Pinet, another Jesuit priest, commenced in the Cahokia village of Indians, which occupied the same place that the present town of Cahokia does, and commenced his christian labors. The traders also assembled in these Indian towns, and thus Indian villages, by christianity and benevolence, were changed into civilized and happy colonies of whites.

Agriculture made its first entrance into Illinois around these villages, in the year 1682, and the American bottom has the proud honor to bear on her bosom the first fruits of agriculture

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all thy soul, and thy neighbor as thyself," impressed strongly on their hearts, and they lived in peace and friendship with the numerous herds of savages that were legion, at that time, in the west. They had scarcely any wars with the natives, but resided with their neighbors, white and red, for a hundred and fifty years, in perfect peace and harmony. These French colonists never disturbed any one on account of their religion, or executed Quakers or any other sect for difference of opinion in religious matters. No one was ever exiled from Illinois on account of his religion, or were the natives ever sold into slavery. These French colonies exercised no malignant spirit of vengeance and extermination against any one for the worship of God at a different altar from their own. They were a peaceable and christian people, and, as such, they enjoyed that prosperity and happiness that can alone be experienced by the truly pious.

But it is true the early French immigrants were not good farmers. About one-half of the population depended on the Indian trade and voyaging for a living; and the other half were husbandmen, and cultivated the common fields. These colonies, as above stated, were established in the American bottom, where the soil was exceedingly fertile and easily cultivated. A very small amount of labor raised much produce. Large common fields were established, inclosing much territory, with few rails in a fence. The rivers, bluffs or lakes, generally answered for some part of the inclosure.

In these fields, wheat, mostly spring wheat, and a hard, flinty species of Indian corn, were cultivated and raised in sufficient quantities to support the inhabitants, and much for exportation south. The villages of Prairie du Rocher, Fort Chartres village, St. Philips and Prairie du Pont villages were added to the former colonies in the American bottom, and a great portion of the whole bottom was in cultivation at the highest points of French prosperity in Illinois. I have seen the marks of the plow for twenty or thirty continuous miles above Kaskaskia, in the bottom, where the land would permit, and in an extensive range of country around the villages of Cahokia and Prairie du Pont. It is stated by authors that great quanties of flour were shipped to New Orleans, in olden times, from the Illinois and Wabash colonies.

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forced the people to use carts without an atom of iron about them. In alluvial soil, where rocks or gravel did not appear, these carts performed tolerably good service; much better than sleds. The plows were honored with only a small point of iron on the front in the ground, and that tied on to the wood with raw hide straps. The beams of the plows rested on axles, supported by small wheels, also without iron, and the whole concern hauled on by oxen—horses were not used in the plows by the French in pioneer times—and the oxen were yoked to the plows by the horns. Straps of untanned leather tied a straight yoke to the horns of the oxen, and a pole or tongue coupled the yoke to the wheeled carriage, on which rested the beam of the plow. At this early day the French farmers used no small plows, and had none. In the war of 1812 the French obtained the knowledge from the Americans of the use of the small plows to plow amongst the green corn. Before the war the French and Americans were strangers, and not friendly to one another, and learned nothing from each other. I presume for more than one hundred years the French plowed in their corn about the first of June, and turned under the weeds, and not many grew until the corn was up out of the reach of them. They planted the seed corn in the furrows as they broke the ground, and turned the furrow on the corn planted; plowed a few furrows more and planted another row of corn; and so on, until the field was all planted. The weeds were kept down with the hoe, or briar scythe. Sometimes strange looking Indian pumpkins were planted with the corn, and at times, though seldom, turnips were sown between the corn rows. Potatoes were not raised to much advantage; not sufficient for the consumption of the people—I mean the French inhabitants of olden times. The Americans always raised abundance of Irish potatoes, since my recollection, in Illinois. For many years there were no sweep potatoes cultivated in the country. Not much corn was raised by the French in pioneer times, as they did not use it to any great extent for bread, and their stock wintered out, for the most, in the range. In the summer the range was excellent, and all kinds of

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or an old one abandoned. A mathematical similarity reigned in all the French colonies for these long series of years, until the Americans introduced new agricultural principles among their French neighbors.

The wheat crop was generally sown in the early spring, and tolerably well plowed in with the ox team. It was cut with the sickles, or reap hooks, as no cradles existed in those times. They bound the sheaves with grass cut for the purpose, hauled the crop home in either horse or ox carts, and stowed it away in barns. The ancient custom was, at "harvest home," to tie together some nice straws of the wheat in the shape of a cross, and place it over the gate of the husbandman. This exhibition was in praise to Providence for the harvest, and also to show that the crop was housed in the barns.

In the winter the wheat was threshed out in the barns with flails, and ground, for the most part, in horse mills.

The spring wheat made good, dark colored bread, which many preferred to the bread made of fall wheat. Little or no oats, rye, barley or buckwheat was raised in Illinois for one hundred and fifty years from its first settlement. The French never cultivated, to any great amount, either flax, cotton or hemp, nor did they manufacture into clothing what little, if any, they did raise. They used very few spinning wheels, and I do not recollect ever seeing a loom among them. All their clothing, except the deer skin moccasins they wore, they purchased of the stores.

They raised considerable stock—horses and cattle, some hogs, but no sheep or goats. Their horses, known as "French ponies," were numerous, and of excellent pedigree. They were generally small, but of the pure Arabian stock, from Spain. No care was taken of them for more than one hundred and fifty years, and the breed scarcely ever crossed. Many generations of them never ate an ear of corn or other grain, but lived on the range, winter and summer. The French, in olden time, kept no stable horses: but

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barbarity the French observed in changing the male cattle, prevents me from recording the operation.

The French never raised hogs in proportion to their other stock. They lived on vegetable diet more than the Americans, and used less pork. Bacon was uncommon among them. They rendered a fat hog into lard for a family, and the pan cakes then were triumphant.

The common fowls were abundantly raised amongst the early French, and the poultry and eggs gave the people much healthy and agreeable support. They excelled the American masses in raising fowls in the gardens and in the *dance*.

The French were attentive to the cultivation of their gardens, which gave them a good part of a healthy and cheap living.

The French, English and American governments awarded to the French colonies large commons, attached to the villages, to advance agriculture; but at this day these commons are appropriated to raise a fund to support common schools.

The French colonies in Illinois increased, slowly, from the first settlement, in the year 1682, until the year 1763, when the country was ceded to Great Britain. From that year, 1763, to the present, 1856, they have been on the decline. The highest point of French prosperity and population in Illinois was at the cession of the country to England, in 1763, when about half the population moved to the Spanish possessions, on the west bank of the Mississippi. Judging from the best information I can obtain, I conclude there were about eight thousand white inhabitants and one thousand blacks in Illinois at the cession to Great Britain, and at this day I believe there are not more than two thousand five hundred Creoles, the descendants of the ancient French, and about three hundred colored people, the offspring of the five hundred slaves Renault brought to the country, in 1720, from San Domingo, to work the mines in Illinois. It is a surprising fact, that the French population does not increase, although the government was so liberal in granting lands to them, and their lives being so moral and exemplary.

The Jesuits, in early times, had water and wind mills erected in various sections of the country, to accommodate the agricultural interest. I saw, in early times, the remains of wind and water mills, said to have been erected by the Jesuit societies.

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tinued, hand in hand, down to the present time. The French Creoles are universally Roman Catholics, and are a sincerely devout and religious people. On their hearts are impressed, strongly, the great principles of christianity, by which "the carnal man"—the base, low and vulgar passions and instincts—are measurably subdued, and the higher, more enlarged and elevated principles of the soul are cultivated and improved, so that *these people* enjoy a serenity of mind and happiness that is the fruit of pure and holy religion. At the first settlement of the American colonies in Illinois, when the French Creoles had the ascendency, these principles of morality and religion exerted a powerful influence in the proper and correct organization of all the settlements. This character of the early inhabitants gave tone and influence to all the subsequent settlements in Illinois.

CHAPTER III.

THE FIRST AMERICAN SETTLEMENTS, AND THE FIRST AMERICAN AGRICULTURE IN SOUTH ILLINOIS.

Many of the soldiers of the revolution, who conquered Illinois from Great Britain, under the command of the celebrated General Clark, were the first settlers in the captured country. These brave defenders of the rights of man, with incredible hardships, toils and dangers, wrested the country from British tyranny, and in peace and quietness sat down, under their vine and fig tree, to enjoy the harvest of their labors. One of the greatest generals of the revolutionary age, General George Rogers Clark, led his brave men to glory and victory, and in the conquered country, Illinois, these same revolutionary heroes laid aside the arms of war and took up the implements of peace and agriculture.

No country can boast of a more glorious and honorable population than Illinois can, in her revolutionary soldiers, who conquered the country and then colonized it.

On the 4th of July, 1778, General Clark led his little army to Kaskaskia and captured that post. In a few days thereafter all Illinois submitted to his power, and was in his possession. The next year, 1779, he conquered Vincennes and Fort Sack-

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condition of the army, induced many of them to settle in the country. Other revolutionary soldiers, whose services were not performed in the conquest of the west, also settled in Illinois, and became the founders of large families. Three-fourths of the American pioneers of Illinois, who located in the country before the war with Great Britain, in 1812, were soldiers of the revolution, or had been soldiers in the Indian wars of the west. Illinois may feel truly proud of her ancient population, as she does of her citizens of the present time. The heroes of the revolution, the companions in arms of Washington, Wayne, Clark, Shelby, Robison, Jackson, and a host of others, together with the brave defenders of the country from Indian depredations, first colonized Illinois, and made lasting impressions on the country of independence and patriotism—glorious impressions that will be transmitted down to the latest posterity.

In 1780 a settlement was made on the high land east of the Kaskaskia river and village. The same year, or soon thereafter, colony of Americans was established in the American bottom, west of the present town of Waterloo, which gave the name to the alluvial tract of country extending between the bluff and river from Alton to Chester.

Another settlement was made in the year 1781, at the Bellefontaine, near the town of Waterloo. A few years thereafter, the New Design settlement was made, and in 1783 a fort and colony were established in the American bottom, nearly west of Columbia, in Monroe county. In 1791 Whiteside's Station was erected, and a settlement made around it, and in 1797 the Turkey Hill Colony commenced.. A town was laid out in the year 1796 and called Washington; but afterwards it bore the name of Horse Prairie Town. It was located on the Kaskaskia river, near the upper end of the Horse Prairie, where a town is now laid out and called Lafayette. About the year 1798 a mill was erected on Horse creek, towards the mouth, and a settlement made about the same time in the upper end of the Horse Prairie, in Randolph county.

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were made mostly of pioneers, and composed the *nucli* of a densely populated country some years thereafter.

In the above years, before 1808, settlements were made on Silver creek and the Kaskaskia river, in St. Clair county, and on Shoal creek and Sugar creek, in the present counties of Bond and Clinton. The settlements on Wood river and Silver creek, in Madison county, were commenced and extended before the year 1808. A slow but gradual growth of the country continued in South Illinois from 1808 and onward. About this time, 1808, the United States salt works, near Shawneetown, attracted public attention, and added much to the growth of the country in that section.

The celebrated salt spring, situated a few miles south of Equality, in Gallatin county, had been known and worked by the Indians and French of Vincennes, since the first colony commenced at that village, about the year 1720, and still pours out volumes of salt water, but the wood being destroyed near the spring, and stronger salt water being discovered, it was abandoned.

These salt works were a great advance to the agricultural interest of the country. Produce was exchanged by farmers for salt, when money was scarce in circulation. The alum salt becoming so plenty and cheap, these salt works gradually declined, and are at this day doing a limited business.

Illinois was once under the government of the Northwestern Territory, which was organized in Illinois, by Governor St. Clair, in the year 1790. In 1802 Illinois became a part of the territory of Indiana, and William H. Harrison the governor. In 1809 the territory of Illinois was organized, and Ninian Edwards appointed governor.

A change of government, and a newspaper established at Kaskaskia, the seat of government, increased the emigration to the country considerably.

The immigrants to Illinois were generally poor, and their agricultural exertions for some time did no more than support them

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In early times mills in the fall to grind the bread corn were almost out of the question. The pioneers were compelled to resort to hand mills, graters, mortars, &c., to beat the corn into meal.

The early settlers depended greatly on stock and the range to support the stock. The prairies also furnished both the French and Americans with the prairie grass in the greatest abundance for hay. It was the general practice in Illinois, for at least one hundred and fifty years, to mow the prairie grass and make hay of it. I have mowed many a day in the prairie grass for hay. But the settlers in and near the river bottoms, wintered their stock in the range.

The *cane*, for range in the winter, extended north from the mouth of the Ohio about one hundred and twenty miles up the Mississippi, and there the rushes commenced, which was better than the cane for winter food.

Some produce was each season exported and sent from Illinois to market. Hogs and corn were shipped in flat boats to New Orleans, and, at times, good returns were made. The most difficulty was the dangerous navigation of the river. Many boats were lost in descending the river. Some hogs were sold to the miners working the Missouri lead mines.

The first material advance that agriculture experienced in Illinois was by the emigrants from Hardy county, Virginia. Upwards of one hundred and sixty souls emigrated to Illinois in June, 1797, and were a hardy, honest and industrious population. They first settled in and near the New Design, and were the first who improved agriculture in South Illinois. They cultivated fall wheat for market, and raised sheep and made linseys for clothing. They were not hunters by profession but husbandmen of excellent morals and character.

In the first year or two of the present century, several flat boats, laden with flour, sailed from Kaskaskia to New Orleans, while that city was in the hands of the Spanish government. The flour was made of Illinois wheat, mostly raised at the New Design, and manufactured in the mill of Gen. Edgar, a few miles northeast of Kaskaskia.

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often engaged in the primitive manner of picking the seeds from the cotton with the fingers. This operation is slow and expensive. The next was the gin, with rollers, and now the cotton is picked with machinery, without much cost or time. In those primitive days the Americans cultivated some tobacco, but not much for market. The French raised and manufactured more tobacco than the Americans. The Creoles manufactured the tobacco into carrots, as they were called. A carrot is a roll of tobacco twelve or fifteen inches long, and three or four inches in diameter at the middle of the roll, and tapered towards each end. The rolls were round, and would weigh four or five pounds, I presume. It is said this was good smoking tobacco, and it made a considerable traffic with the Indians.

In considering the ancient agricultural capacities of South Illinois, it is proper to state there were in it six water mills and one saw mill, about the commencement of the present century. Edgar's mill, above stated, was, for the time, a fine flouring mill, with French buhrs, and made excellent flour. About the same may be said of Tate & Singleton's mill, on the Bellefontaine creek, not far northwest of Waterloo. John F. Perry owned a good flouring mill on Prairie du Pont creek, not far south of Cahokia. Judy owned a water mill a few miles south of Columbia. Andrew Kinney erected a mill near the Mississippi bluff, six or eight miles southwest of Waterloo. Valentine owned a small water mill near the Mississippi bluff, west of Waterloo; and Joseph Kinney erected a water and horse mill on Rock creek, east of Waterloo. Henry Serles, as heretofore stated, erected a water saw mill on Horse creek, near the mouth of the stream.

At this early day the teams and harness of the husbandman were defective, and scarcely sufficient to answer the purpose. The Indians, before Wayne's treaty of peace, in 1795, were hostile to the Americans, and stole many horses of the whites. The settlers were thereby compelled to use oxen on the farms and for many other domestic purposes. The cattle grew large, and the oxen, mostly, were excellent. It was often difficult to procure the ring

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hickory withes served for traces in the plow. Truck wagons, the wheels being made of large sycamore logs, sawed off, were frequently used, and were about similar to, but not so sightly, as the French carts, without iron. The truck wagons were made entirely without iron, and often, almost without tools. In these aboriginal times husk collars were mostly used. I have often seen farmers in the timber pack the rails on their backs from the trees where they were made to the fence, and put them up into the fence. Sleds were sometimes used, but they were a bad excuse. The hoe, at that day, in the timber, was much more used than at this time. Many farmers, after they gathered their corn in the fall, hunted considerably, and thereby made some additional support for themselves and families. Peltries and furs were always in demand, and at a good price. The flesh was mostly preserved and used in the family. Some farmers, where their plantations would permit, engaged to make voyages on boats. These voyages sometimes extended to New Orleans, Pittsburg and Mackinaw, or to Prairie du Chein.

The settlements increased to the war of 1812, when the borders of the colonies remained stationary, or, perhaps, receded in some instances; but the territory grew in population as fast in the war as it had done in peace.

The limits of the settlements during the war were as follows: Commencing at a fort or camp, on the Mississippi, opposite the mouth of Missouri; thence to the forks of Wood river, in Madison county; thence to Camp Russell, a few miles north of Edwardsville; thence to the camp of Capt. Samuel Whiteside, on Silver creek, above the settlements; thence to Hill's and Jones' forts, on Shoal creek, and thence to a fort at the present town of Carlyle. Most of these outside forts moved in during the war. Many other small forts were kept up around the northern frontiers, in a general line with the above stations. A fort at Chambers', a few miles southeast of Lebanon, St. Clair county, was maintained most of the war, and one on Doza creek, towards its mouth. Capt. Short made a large camp of his United States rangers on Crooked creek, at the place known then as "the Lively Cabins." Fort La Motte was sustained near the Wabash river during the

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I was a private united ranger during the year 1813, and part of the year stationed on the Mississippi. We ranged round the frontiers; therefore, I knew the condition of the country during the war. It seemed to me the same quantity of produce was raised during the war as was before, and the inhabitants fared equally as well, as to the common support, during the war, as at any other time.

It is my opinion more corn would grow on an acre of equally good land, fifty years ago, than at present. The earth has become much drier within fifty years, but I know not if that be the reason. No vegetation, grass or weeds grow as strong or as high as they did in 1800. In the old settlements, considerable quantities of wheat were raised, and much of the flour to supply the regular army at the outposts, during the war, was manufactured out of the wheat raised in the country. On the frontiers, not so much was raised.

CHAPTER IV.

THE SALINES AND MINERAL WEALTH OF SOUTHERN ILLINOIS.

Southern Illinois possesses not only the greatest abundant capacity of direct agricultural wealth, but is also immensely rich in salines, and in many of the useful minerals. Salt is an indispensable article in human economy, and the southern section of Illinois is abundantly supplied with this necessary article. And although the salt works in Southern Illinois may not be worked at this day, yet they were once in operation, and supplied the country with salt. They stand by now, as a reserve in an army, and may be again brought into successful action. They, at this day, have a tendency to regulate and keep down the price of salt that is imported into the country. The United States or the Ohio saline, at this day, stands aside, enjoying its dignity and well earned popularity, like a venerable and worthy president of the United States, after going through a prosperous and successful administration of the government for eight years. The ex-president reclines with ease and honor on his well earned fame and character. So with the ex-saline; it slumbers in peace, after being the most

volunteer officer, under Gen. Harrison, and at Tippecanoe, in that terrible night conflict, fell, charging the enemy. The honor of his actions is preserved in the name of a county, White, which is situated near his agency, the Ohio saline. Other salt works are situated on Big Muddy river, not far below Murphysboro, in Jackson county. A considerable amount of salt has been manufactured at these works, but nothing to compare with the Ohio saline. Other saline water was discovered in Bond county, near Shoal creek, and works established at it. These works produced considerable salt, but, like the others, have fallen into disuse. Works were in operation, about thirty years since, in Madison county, on the east fork of Silver creek. These works never did the owners or the public much service. Salt water was discovered on the upper branches of Little Muddy, and at various other places in Southern Illinois, but never worked to any great amount. It appears that salt water exists, in great abundance, in Southern Illinois, and circumstances may yet arise that will make it necessary for salt to be manufactured here to supply the inhabitants.

The mineral wealth of Southern Illinois in coal is abundant and inexhaustible. In most of the coal localities three different strata exist, one below the other, and the lowest is always the best coal. It is stated that Illinois contains the most acres of coal land on the continent, and 56,695 miles more than all Europe. In the year 1823 the first coal was hauled to the St. Louis market, from the bluffs, on the Illinois side of the Mississippi. But in the year 1809 William Boon shipped considerable coal from the Big Muddy mines to New Orleans, which was the first coal exported from Illinois. At this day coal forms an element in Illinois commerce that adds greatly to the wealth of the state. The railroads being constructed all over the state, and particularly the Central railroad, have given to the coal interest, within a few years, great energy, and much is exported, as well as used in the state. The farmers throughout the country are commencing to use coal as the common fuel, in place of wood, and I have no doubt they will increase the use of coal until wood will be measurably laid aside.

Both iron and lead ore have been discovered, in considerable quantities, in Hardin county and the region round about. I have reason to believe great quantities of good iron ore exist in Southern Illinois, as it does in many other parts of the state. In fact, the whole western country seems to abound in iron ore.

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wood, will soon make a report on the subject of lead ore and other minerals in Southern Illinois that will shed light on this important interest.

In 1826 a great excitement was started in and around Monroe county, at the discovery of copper, and quantities of the public lands were entered to cover the supposed copper mines. It has all blown out. It is a blessing that silver and gold do not exist in Southern Illinois, as I am satisfied these precious metals do the country no good. The gold of California has never paid all the expenses, besides the loss of life, that it has cost to obtain it. The lead made in Illinois never paid for the labor and expenses incurred to procure it.

CHAPTER V.

THE IMPROVEMENT OF AGRICULTURE IN SOUTHERN ILLINOIS SINCE THE WAR OF 1812.

The war with Great Britain, in 1812, produced, in the whole country, an excitement and agitation that advanced the growth and agricultural interests of the territory of Illinois. The extraordinary fertility of the soil, the beautiful, undulating surface of the country, and the mild and agreeable climate were seen and appreciated by thousands in the various military campaigns through the state; and these volunteer soldiers were generally citizens of sound judgments, that gave Illinois a character and standing abroad that induced greatly the immigration to the territory. Moreover, a great portion of the citizens had been engaged in the military service of the country, and their wages paid them for their services were expended in the country. This extra circulation of money gave the country an advance that it never experienced before. In addition to the above, an act of congress was passed, in 1813, granting to the citizens of the territory a pre-emption right, by which the actual settlers secured their homes at the congress price of the public lands. Before this act of congress, the public lands were not brought into market, and the great masses of the farmers resided on the public domain as squatters. Under these circumstances no one would improve his farm to any great extent, fearing he would not be able to purchase it at the United States' land sales.

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Wheat, after the war closed, in 1815, was more cultivated, and

long after the war, a speculation of mill building, that was carried too far, injured the country. The shovel plow, that had been, in pioneer times, used considerably, was superceded by the barshear, and a better breed of stock was introduced. Castor beans and tobacco were cultivated before the state government was organized, in 1818. Flour was then manufactured for exportation, and cattle and hogs were also raised for a foreign market.

The territory of Illinois, in population and in agricultural interest, improved and flourished greatly in territorial times, between the war and the formation of the state government. In 1812 the population of the territory was only 12,000, and in 1818 it had increased to 40,000. The immigration was generally a moral, correct people, who came to the country, on mature reflection, to better their own condition, and to provide a good country for their children. They emigrated from the various old states, not in masses, but by families; and they assimilated themselves to the laws, habits and customs of the previous inhabitants of the country. As it has been already remarked, the French and the original American settlers were a brave, independent and patriotic people; and the immigrants settling in the country amalgamated themselves with the previous inhabitants, and became the same people.

The laws of the territory were the foundation of the present state laws of Illinois, which, for their equity, justice and liberality, are not surpassed by any state in the Union, except, perhaps, by Louisiana, where more of the civil law prevails. The territorial laws of Illinois were the laws of the Northwestern Territory, which were adopted by the governor and judges of the territory from the laws of the various states, and were an excellent code of laws. It is to the laws, and the proper execution of them, that the state of Illinois owes so much of her prosperity and rapid growth to her ultimate destiny.

Directly, in the same proportion as the people of Illinois succeeded and prospered, the agricultural interest, and other great pursuits, advanced and prospered. It will be seen, by examining the history of the territory of Illinois, that schools and churches

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gates to the convention, at Kaskaskia, that formed the state constitution, in 1818, embraced not much more territory than is in the present supposed limits of Southern Illinois, and are the same people and their descendants, with the additional immigration. The original constitution of the state of Illinois showed a wisdom and capacity of self-government in its various provisions that has not been surpassed in the state since that day, and it is this charter of free government, with its wise and salutary provisions, which, to a great extent, caused Illinois to prosper and flourish in such an unprecedented manner, that this state is called, at this day, the Empire State of the West.

The first colleges and conspicuous institutions of learning were established in Southern Illinois, and many of them remain, to this day, eminent seminaries of learning. The Rock Spring High School, the colleges at Lebanon and Hillsboro, opened into existence not long after the state government was organized, and have performed signal service to the country. The Rock Spring establishment was removed to Alton, and is now in successful operation. This institution, (being enlarged, and assuming the name of the Shurtleff College,) is one of the foremost seminaries of learning in the state, and bids fair to continue a blessing to the country. These institutions of learning bear witness to the prosperity and the enlightened progress of the people of Southern Illinois, and have had a powerful influence in establishing the high standing and character the whole state enjoys at this time. Not only is Southern Illinois conspicuous and eminent in colleges and common schools, but also a great number of the most eminent professional men in the state resided in and extended their influence in this section of country. The same may be said of the scientific and literary characters. Many scholars, profoundly versed in literature and science, have spent most of their days in Southern Illinois, and have, with the professional gentlemen, given much fame and reputation to the country.

The south of Illinois has been called "Egypt," and we are delighted with the name, which is somewhat appropriate, inasmuch as our modern Egypt excels its ancient namesake in the abundant products of the earth; and the people are everywhere known

every section of the country where they are needed. Seven fine steam mills are now in operation in St. Clair county, and two more, of great capacities, are being built within our limits. Other counties are also doing well in the manufacture of flour at this day. The railroads in the south, and particularly the Central, are infusing life and energy into agriculture. Nothing has done the farmers so much service, since nature gave them this most beautiful country, as the railroads.

At this day agricultural implements are manufactured in abundance in almost every town, so that the people are not compelled to resort to the old and obsolete modes of preparing their crops for market. Horse and steam power is almost entirely used to cut and thresh the wheat, and manufacture it into flour, in South Illinois.

A great many of the counties in the south have established agricultural societies and fairs, and frequently exhibit articles that would take the premiums at the state fairs. The best breed of stock, and the most choice selections of seed grain, are sought for and being introduced into the country south.

One other cause for this unexampled prosperity, at this time, in South Illinois, is the exceedingly high prices for all agricultural products. The currency being abundant and sound, adds another element to the great advance of the wealth and population of Southern Illinois. The health, likewise, of the last year, was most excellent, which advanced, greatly, the interest of agriculture, and I believe I may say, in truth, that the people of South ern Illinois are prosperous and happy.

CHAPTER VI.

THE AGRICULTURAL PROSPECTS AND DESTINY OF SOUTHERN ILLINOIS.

It is stated by an eminent man of Missouri, Mr. Bates, "that agriculture depends, for its very existence and success, on land, labor and learning." This is self-evident; and so it will appear to all intelligent agriculturists. The land in Southern Illinois is, without doubt, amongst the most beautiful and fertile tracts of the great west, and is also blessed with a climate that cannot be sur-

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most beautiful section of the state by proper cultivation and improvement. But the labor and learning must evidently go together, as one cannot exist, to any advantage, without the other. Work without learning will not succeed; and learning without *work* is equally disadvantageous.

The people of Southern Illinois are the noble descendants of worthy sires. They are composed of the descendants of the heroes of the revolution and Indian fighters of the west, together with the choice spirits whose talents and energy enabled them to abandon the old worn out states for a new and better country.

This is the population of Southern Illinois, and a more noble stock cannot be found on which to engraft all the branches of agriculture. But the people must become intelligent in the science and practice of agriculture, before they can succeed to any great extent. Nature has decreed, in her irrevocable laws, that man must labor for his support, and to labor with any hopes of success, he must be intelligent to a common degree at least. It is absurd to suppose that any one could become a successful agriculturist if he were void of intellect, and the more he improves his mind and labors in proportion, the better husbandman he will be. There is no excuse for any one in Illinois that he has no time or opportunity to improve his mind in his agricultural pursuits, as the earth produces in such abundance that any one, no matter how poor he may be, can find time sufficient to advance his agricultural "learning." And books and newspapers on the subject abound in every section of the state, and can be purchased at low prices. Moreover, a volume which does the state and its authors great honor, known as "The Transactions of the State Agricultural Society," has been published at the cost of the state, and many copies circulated amongst the people, free of expense; and I am happy to be able to recommend it to the agricultural public as a book that every farmer should read and study. He will find in it more practical and useful information to suit the farmers of Illi-

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Then there are the annual reports of the patent office, sent free; besides many cheap agricultural books, and two excellent periodicals published in the state. The Illinois Farmer—a first rate monthly journal—at Springfield, is sent to subscribers at the low price of $1 per year; and the old Prairie Farmer, Chicago—now published weekly—costs only $2 per year.

We often hear complaints made that farmers are not selected for public offices and confidential trusts. The reason is, they do not generally qualify themselves to perform the duties of these situtions as others do. The agricultural interest would prefer one of of their own number, if they were as competent as those of other professions to officiate in these responsible stations. Farmers of Illinois: how long will you neglect your own interest by overlooking the improvement of your minds? You are obliged to take a back seat in both public and private business, if you neglect education.

Fellow citizens of Southern Illinois: You possess the power and capacity to make your section of the state prosper and "blossom as the rose." Nature has been most bountiful to you in presenting to you the best and most choice favors. You are blessed with a central location in the largest and most fertile valley on the globe, and in the centre of commerce of thousands and thousands of miles of river navigation. Almost all the large navigable streams of the west concentrate their mighty waters around your borders, and by their junction, at the city of Cairo, the inland ocean is formed, which extends to the Gulf of Mexico. No point on the continent of North America has more natural advantages for a great inland city than Cairo, which is now fast rising to the great and grand destiny that awaits her. The Central railroad, extending north from the mouth of the Ohio, through the heart of the great empire state of the west, and connecting with the lakes at Chicago and with the Mississippi near Galena, has already given Cairo and Southern Illinois an onward impulse that they never before experienced Cairo is commencing to exert the powers that nature has so bountifully bestowed on her, and is extending her ample folds of commerce to all parts of the continent. Public and private edifices are being erected, of great and grand dimensions and of exquisite and elegant taste and workmanship.

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while the small steamers ascend again the smaller streams, with the rich freight of "the sunny south." No ice or other obstructions in the Mississippi, will ever, from Cairo to the ocean, interrupt the navigation of that noble stream; so that Cairo and all the markets of the earth will be in direct water communication with each other.

Water conveyance is the first mode of trade and travel known on earth, and will remain forever, the victory of God over man. The railroads are the auxiliaries to the navigable streams, and have within a few years performed wonders for the United States, and particularly for the state of Illinois; but it is at last the water conveyance that will be resorted to for the great and heavy commerce of the world.

The whole length of the Ohio river will be improved in a few years by slackwater navigation, or by canals. So will the other streams, the Wabash, Cumberland, Tennessee rivers and others, so that Cairo will be the centre of a commerce that man, in no age or country, has ever witnessed. Cairo, before the close of the present century, will contain two hundred thousand souls, and Southern Illinois at least a million and a half of people.

The great commerce of the valley of the Mississippi is founded on the agriculture of the same region, and they are allied together by indissoluble bonds. The commerce of Cairo and Southern Illinois will force into existence a new impetus to the agriculture of the south of Illinois. The two thousand four hundred miles of railroads, now existing in the state, will soon be increased to accommodate the wants of one and a half millions of people in Illinois. The late election returns show Illinois to be the fourth state in the Union in population—only three states in the Union that take precedence of the Prairie State! This commerce, and facilities of river and railroad conveyance, will force all parts of the state into healthy and energetic action. Southern Illinois will marshal into efficient energy all her agricultural resources, and discover probably other sources of agricultural wealth. The various agricultural crops will be more diversified and multiplied; so the seasons, dry or wet, will not so much affect the farmer. No country on the continent is better adapted to the growth of fruit than South Illinois. The French, down from their first occupation of the country, in the year 1682, cultivated to advantage both

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Flax also grows well here; and cotton may be cultivated to advantage in Southern Illinois. All species of grass will find a congenial soil in the Cash river bottoms and other large alluvial tracts in this region of country.

I have for the last thirty years pressed on the consideration of the farmers the raising of mules and hay for exportation, and I still recommend them as two of the best articles that can be raised in Southern Illinois. Mules are also the best animals for drudgery and draft on the farms, and are always a more ready sale than horses. And at all times hay will command a fair price in the southern markets.

With all these fortunate circumstances urging Illinois to action and energy, the whole state has within a few years increased the substantial wealth of the country with great rapidity. The wars in Europe and other causes created a good market for most of the agricultural products of Illinois, and the people embraced the occasion with great avidity and advantage. Illinois is wending her way with certainty and with much speed to her great and glorious destiny. In a few years the Prairie State will be the great empire state in population and agricultural wealth in the Union, and will exert a great influence in giving tone and character to public opinion throughout the nation. The known intelligence and patriotism of the people will be exerted for the general welfare of the whole Union, north and south, and east and west. The union and constitution of the United States will be secure in the hands of Illinois, so far as this young state has the power to preserve them. And, also, the people will be secure in all their rights and privileges, under the wise and judicious administration of the laws of the state. The people residing in this great and prosperous state, and enjoying so many advantages and blessings, will experience as much happiness as is allotted to man on earth.

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THE BEST MODE OF RAISING AND MANAGING CATTLE ON THE PRAIRIES OF ILLINOIS.

FIRST PREMIUM.

By James N. Brown, Berlin, Illinois.

Grass Plains, *Sangamon Co., Dec.* 3, 1856.

Dr. J. A. Kennicott,

Corresponding Sec'y Ill. Agricultural Society:

Dear Sir—In accordance with your request I forward to you an article on the breeding, raising and managing cattle in Illinois; to be presented by you to the executive committee, for their approval or rejection, in January next.

Having been a resident of Illinois for twenty-two years, and constantly (and at times extensively) engaged in breeding, raising and feeding cattle for the butcher, I give it as my deliberate conviction, that there is no part of the continent that surpasses, if any equals, the prairies of Illinois, in adaptation for breeding, raising and fattening cattle.

In visiting different parts of the Union—north, south, east and west—I have not met with any native stock that equals the best native stock of Illinois and Iowa. To my mind the reason is obvious: Our climate is the most favorable for producing cattle, because, situate between 37½ and 42½ degrees north latitude, we escape the extreme cold of the north and the continued heat of

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in this and other counties, that should never be lost sight of by the breeders and growers of cattle, if they would be successful, and secure to themselves that profit to which the intelligent and enterprising are entitled. Obtain the best females within your means, whether they be native, mixed or pure bred cattle. Study to know the best points of a good animal, and seek, in breeding, to increase the weight in superior and to lessen it in inferior points. By so doing you will increase the value and appearance of the animal. As a general rule, the animal that will give the greatest weight in the least compass will be the best and most profitable. They will have less coarse beef, less bone, and, consequently, less offal. They will invariably consume less and mature earlier; thus proving that they are possessed of good constitutions. Let breeders study to understand the defects of their stock, that they may be able to remedy their defects in subsequent breeding. Never permit a male animal to come on the farm, as a breeder, unless he equals, and, if possible, is superior to the females. He should be of pure blood, for by this means, alone, can the breeder hope to stamp the great excellencies of the breed upon his stock. Avoid breeding in and in as much as you can. The instances are rare when it would not have been better for the breeder to have bred from more remote crosses. A few cases are on record, in England and in this country, where great results have been attained by in and in breeding, but few are qualified to undertake so hazardous an experiment. I confidently believe that more valuable herds have been injured than benefitted by the experiment.

Let the breeder resolve (and then adhere to it) not to keep on his hands more stock than he can keep well. I mean by that, to have his growing stock always increasing in weight, and not to be content, as is sometimes said, with having them to hold their own. Rest assured there is no half way house for them, to rest in. They must and will be gaining or losing weight. Grain, grass and meat are the farmers capital, and, when lost, is lost forever, and he is poorer, and the world has less to subsist on. The general principles and rules here laid down are equally applicable to all breeds and grades of cattle known to the farmers of Illinois. I lay it down, as an axiom, that an animal that is not

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from their herds, and keeping the refuse for breeders, should be abandoned. Such management is truly penny wise and pound foolish. It is a well established fact that the true and only way by which stock can be improved is to select the most thrifty and promising females for breeders.

THE MANAGEMENT OF COWS AND CALVES.

Cows should be bred so as to calve from the middle of March to the first of May. This can only be done by keeping the breeding animal from the cows. Every breeder should do this on the score of economy. By this course his bull retains his health and vigor, and he knows, certainly, when each cow will drop her calf. His calves come at the opening of spring, when cow and calf can do without shelter, thus saving quite an expenditure in building—a matter of consequence to the young farmer. Great attention should be given to cows at calving. As soon as the calf sucks plentifully, which will be at from two to five hours old, the cow should be milked clean, and this should be kept up by milking twice a day for eight days, at which time, if the cow does well, her milk will be fit for use. From the 1st day of May to the 1st of November cows are most profitable for dairy purposes. The expense of keeping is much less, on our best pastures, during the grazing season, than even the poor manner in which the cows of Illinois are generally wintered. The flow of milk, during the grazing season, on good pasture, is much greater than during the winter with good shelter and full feed. I would remark, without stopping to discuss which of the various breeds of cattle known in Illinois is most valuable for milk, that too much attention cannot be given, by breeders, to heifers with their first calves. By following the directions, which I shall now give, for the management of heifers with their first calves, the milking properties of all breeds of cattle would be greatly improved. The heifer should be from 30 to 36 months old when she drops her first calf. After the calf has sucked plentifully the heifer should be well milk-

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I can) to let my cows on to pasture at night after milking. When I do so, I find that my cows graze at dark and about daylight, and that they grow and thrive better, and go through the winter in finer condition. When the calf is weaned, the dam should be kept to her milk as long as possible, even up to within one month of calving. This is essential in making a good milker. By pursuing the above plan I have seldom failed to make fair milkers of all the heifers grown on my farm. The practice of letting calves run with their dams, particularly with heifers, as is often the case, is ruinous to them as milkers, and of no benefit to the calf. The calf that runs at large with the dam feeds badly, for as soon as the calf gets hungry, instead of grazing it will seek the dam for suck, and that will be five or six times per day, thus preventing the filling or distending the udder, and lessening the capacity of the bag to hold milk. On this plan the udder becomes fleshy, the milk flows slowly, and she becomes a poor and hard milker. When a calf runs at large with the dam, and, when weaned, the cow is permitted to dry up her milk, nineteen out of twenty such are worthless as dairy cows, It is important that every farmer should have shelter sufficient to house such of his cows as may have calves during the winter, and those that are giving milk. There is economy in this, for one well fed cow, under shelter, will give more milk than two equally well fed and exposed on our prairies. Cows that have calves in winter must be sheltered to do well. When they are not well provided for the cows run down rapidly, and without extraordinary care and attention soon get on the lift, their teats crack open and the result is a spoiled bag, which amounts almost to the loss of the cow as a milker. In addition to this calamity, it takes all the milk to keep the calf alive to grass, and the calf is stinted in its growth, and never fully recovers from it.

I keep my milking cows under shelter at night, during winter, letting them out on the pasture during the day. They receive the same amount of food that my dry cows do, which run out day and night. A portion of them have young calves, which furnish my family with milk and butter and some to spare. They are generally fat enough for the butcher, and their calves good veal. A cow, to be profitable as a breeder, should be in an improving

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and a few handsfull of corn meal, or shorts and bran mixed, should be given every day, to learn them to eat. They will begin to feed at four weeks old. Half the milk of the cow, with good grass, will keep the calf in fine condition. When only allowed to suck morning and evening, they feed and grow faster and suffer but little inconvenience when weaned, and never lose any flesh. The first winter calves should have access to good grass, (timothy, blue-grass, or both,) with a shed or grove to protect them from the storms of winter. The question may be asked, how are we to have a grove on the prairies to protect our farm stock? I answer, almost as easily as to have a temporary shed. The first day of April, when the ground is too wet to plow, set out one hundred locust trees at some convenient spot, and keep the stock from them three or four years, and you have it. If you have not the trees, plant the seed in May, four feet apart each way, as you would corn, and you obtain the same result in four years. I hope I shall be pardoned for saying that every prairie farmer is too negligent about planting trees. There is no labor that would pay so well as that applied in planting trees. Walnuts should be planted along our fences. This is rapidly done. Open a furrow in October, and drop the nuts four or five inches apart and cover with the plow, and the work, with suitable cultivation, is done. Nothing adds so much to the beauty and comfort of a prairie farm as clumps and rows of trees, saying nothing of their ultimate value for timber.

The best and most successful mode of feeding grain to calves, during the first winter, is to use a corn and cob crusher, and feed in troughs, giving to each head two quarts per day, with the addition of hay, corn fodder or clean wheat straw, when snow or sleet would prevent the young cattle from getting to the grass. Calves wintered in this manner will come to grass at one year old fat and sleek, with a cost of two dollars per head in corn and cob meal at twenty cents per bushel.

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profitable as it should be, good grass for summer and winter grazing is indispensable.

Yearlings handled as above stated should be put on rich pasture, (wild or cultivated,) and on such kept during the grazing season, viz: on the prairie from May to 15th or 20th of September, and on cultivated grass to the first of November. At the latter date they should go into their winter pasture. When winter sets in, which is about the 15th of December, in this portion of the state, begin to feed in troughs, with half peck of crushed corn to each head per day, and gradually increase to one peck per day. If it is impracticable to feed the corn in the above manner, it may be advantageously fed on the grass, from the shock, in like proportion. A sufficient number of hogs should be put after the cattle to take up the offal. It will take 20 bushels of corn per head second winter, which, put at 20 cents per bushel, will give $4 in grain per head for second winter. Yearlings thus managed will, on 1st of May, when they are two years old, weigh from 1,000 to 1,100 pounds, gross. The two year old cattle should be turned to grass 1st of May, and kept on good pastures until the 20th of October, at which time they are ready for stall feeding, and should be put to corn on the grass, with one-fourth of a bushel to the head, per day, for one and a half months, which will bring the 1st of December. At this time they should go into the feed lot, and have all the corn they will eat until the 1st of May, which will be a half bushel per head per day. This will give 85 bushels per head for stall feeding, which, at 20 cents per bushel, will give $17 per head for the third winter. Each steer thus fed will fatten one hog or winter two well—thus paying the expense of feeding. The system above given for handling cattle will afford a sufficient amount of offal for hogs to pay all expenses for labor in winter feeding, from the time of weaning until ready for the butcher. Cattle fed as above will be ready for market the 1st of May, but should be well grazed until the 15th or 20th of June, which is the most profitable time for selling, taking one season

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3d year, grass,.....	6 00	
" corn,.....	17 00	
Grass, from 1st May to 15th June, time of selling,	2 00	
Making the entire cost of raising and fattening,..	$40 00	
CONTRA—1,450 pounds beef, at $3 50 per hund.,.....		$50 75
Deduct cost,.....		40 00
And you have, for profit,.....		$10 75

It will thus be seen, that by the above system it will cost $40 per head to grow and prepare a steer for the butcher, or $2 75 per hundred, which gives 20 cents for corn on the farm, and pays one dollar per month for grazing, and leaves $10 75 profit. It will be seen that cattle handled as above go into market at three years old instead of four years, as under the common method of handling cattle, and adding to the profit one year's keep. This is no small item, and, in the aggregate, a great gain to growers.

Under the system generally pursued by our farmers in raising and managing cattle, I maintain that it costs three dollars per hundred to produce every pound of beef that is fed in the state, and that no farmer who does not fat his own cattle, but sells, to be fed by others, receives a fair remuneration for food fed in an ordinary manner in which cattle are handled in Illinois. By examining the patent office reports, it will be found that it costs about $20 in winter provender to feed a steer, so as to be ready for the stall feeder at four years old. Now, add to this three summers' grazing, at $6 per season, (it is worth this sum, whether obtained from the prairie or from cultivated lands, for it produces it in beef,) and it will give $18 per head. Add to this $17 for stall feeding, and we have $55, the cost of the production of 1,450 pounds of gross beef. (A lot of cattle handled in the ordinary manner will oftener fall under 1,450 than come up to it.) Placing the beef at $3 50 per hundred, gross, and we have $50 75, the value of the beef. Take this from the cost of produc-

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profit, on the one hundred thousand cattle, of one million of dollars—saving to the growers of cattle four hundred and twenty-five thousand dollars, and giving an aggregate profit of one million. The plan suggested would increase the wealth of the state, annually, one million four hundred and twenty-five thousand dollars, and open up a home market for her surplus corn which often lies rotting in the pens of the owners, for the want of a paying market.

N. B.—For several years past I have provided protection for my outdoor stock in the following manner, and am well satisfied with the result: Take 100 rails, or poles, 10 feet long, to some eligible place; take 3 forks, 4 feet long, made from the fork of a limb, from which the rails or poles are made: set them two feet in the ground, and 14 feet apart; place a pole, 30 feet long, in the forks; then, with a spade, set the rails or poles one foot in the ground, one on either side, alternately, at an angle of 45 deg., and you will have a rail or pole rack, 30 feet long, which will hold five or six wagon loads of hay or straw. This rack I fill with hay while cutting my grass, or with straw while threshing my grain. Five racks will give good protection to one hundred head of growing stock, during the whole winter, and more food than they will consume, when managed as above.

JAS. N. BROWN.

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ON THE REARING AND MANAGING OF CATTLE ON THE PRAIRIES OF ILLINOIS.

SECOND PREMIUM.

By Charles W. Murtfeldt.

In the few pages which I shall submit to the state agricultural society on this subject, I shall not attempt to reason any one into the belief that the rearing and managing of cattle in Illinois, is of vast importance—that it is equal to, if not superior to any other interest of our state—but I will take it for granted, that it is admitted that, in most sections, the raising of grain and of cattle ought to go together; and but few of our race will do with bread only, when they can have the meat also.

Neither shall I attempt to show in these lines whether it be better to raise beef than pork; but in passing will call attention to the use of the steer for draft, before he is fitted for the shambles, and the importance of the dairy product, which enters so largely into the aggregate of our daily food.

I propose to take the two distinct heads, then, in the order in which they are given. First then, the rearing of cattle; and I hope to be permitted to state, that whatever I may say on this head, is my own experience of more than twelve years.

I shall attempt to prove my positions. First, negatively, by showing which is *not* the best mode of rearing cattle; and I make the assertion, that it is *not best* to let the calf draw the milk from the cow, in the manner usually practised by the majority of our farmers, to keep the calf in a small pen and suffer it to draw part of the milk, night and morning, in order to "bring the cow up." This would do for three or four weeks, when the calf is young; but it would soon require something more than this milk, or if the cow is a very good one and the calf has plenty of milk, it will

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If this method is resorted to, viz: to let the calf draw the milk from the cow, which I will admit ought to be as good a way as any, being nature's own and wise plan, it ought to be done in a rational manner, and in my humble opinion something like this: The coming in of the cows should be regulated to occur in early spring. There should be a small but *good* pasture convenient, to receive the calves; in this pasture there should be a good and dry shed, which should be of easy access for the calves to shelter from cold spring rains; the calves should be permitted to draw the milk, and all the milk the cows give (if they can do so,) three times a day, and care should be taken to remove the cows as soon as milked clean. From twelve to sixteen weeks is long enough for the calf to suck; then the cow ought to be dried up and the calf suffered to help itself. Where any of the milk is wanted for family use, or where it is an object to have milk and butter plenty the year round, where good milkers are sought, and dairying is followed at all, this mode of raising cattle had better *not* be pursued.

Second. It is not wise, nor a good way of raising calves, to pursue the way of many of our farmers, who "feed" their calves, (or say they do) when they are literally *starved.* The calves are allowed a little new milk for a week or ten days, then they receive skimmed or sour milk, and perhaps are turned in the highway to "pick their living," and hard picking it is, the most of the time. In this way they are suffered to live (if they can) till late in the autumn; then they are turned to a straw pile, and still live if they can, or die if they must. A calf so raised, even if it chance to winter, is never thrifty, and will be a runted thing always.

There is yet another method pursued by some; that is, turning cows and calves together, and let the calf draw milk when it pleases; this, in my estimation, is the sure ruin of the cow. In our artificial way of breeding cows, they give more milk than they naturally would in a wild state. The often drawing of the calf makes it fat, bnt the cow poor, and as the calf grows older and

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for the dairy, because the often milking will cause the udder to be small, and they have no reservoir for holding much milk; the cow also prefers to have the calf draw the milk, and will hold up if milked by hand, or will not stand to be milked—and for all practical purposes is but a poor excuse for a cow.

My experience has taught me the following plan of raising cattle to be a good one; and I know many good farmers who follow it, and raise the best of stock. I have my cows so managed that they come in in early spring. I wean the calves after they have drawn the milk from the cow two or three times, while I milk, at the same time, all clean, that which the calf may not be strong enough to draw; then I allow the calves nearly all the milk the cows give, for four or six weeks, which gives them a good start; next I teach them, when two or three weeks old, to eat some little of meal or threshed oats, and lick a little salt; at the same time I let them have access to some good hay; next I reduce the quantity of new milk, and give them sweet milk, minus the cream, and by degrees I teach them to drink coppered milk, feeding ten or twelve together in a trough; this I consider better than milk which is just on the change from sweet to sour. As soon as practicable, after there is a good bite of grass, I turn them into pasture, even with the cows, for they know not their dams. I still feed milk, until about three months old, and all through the season if it can be had. In this wise calves are hearty, learn easy to eat anything which may be offered, and will winter better than calves which have drawn the milk from cows, and have received "more knocks than nubbins." They are also more gentle, easier tamed to the yoke, or to milk, and are not afraid of their masters; but on the contrary, learn to know the hands that feed them. By giving them a good chance the first winter, they generally make good thrifty cattle.

By "*managing cattle*," I suppose is meant the summer and winter management—the fattening of calves and the pursuit of the dairy.

In portions of our state, where the prairies are but sparsely settled, and the range is large, the summer management is easy. Let the cattle have salt once or twice a week and nothing further

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cattle should be in different lots. These pastures should have different kinds of grasses; because some afford early and some late feed, like the blue grass of Kentucky; others are better adapted for summer, like the different varieties of clover. Care should also be taken that the pastures are not overstocked.

In wintering cattle, in the northern portion of our state, barns, sheds, &c., are indispensable. Cattle should be housed in the hard storms of winter and in extreme cold; but every fair and pleasant day, they ought to be turned loose and have access to the numerous straw piles and stalk fields; their stable ought to be well ventilated and well littered, and kept neat and clean. These straw piles may easily be so constructed, as to form a shelter against the chilling winds; the shape of an L is well adapted for this purpose, and this latter course will be advisable in the more southern parts of our state, also, where barns are not thought necessary for stabling cattle. Cattle also should be well supplied with proper food. They will eat more in cold dry weather than in warm or damp weather, and they ought to have sufficient food to keep them aside of what they may pick at the straw pile. Where cattle are to be fattened by stall feeding, (which, by the way, is a misnomer in nine cases out of ten, for they have no stalls,) three or four yards or lots are necessary—one to be occupied for to-day by the cattle, the next to be occupied by hogs, to follow the cattle, the other to be empty for the reception of the feed for the next day; and so change from day to day—the hogs to follow the cattle. Where feeding is intended, the corn should be cut up at the roots. As soon as the ears are well glazed and the stalks are yet green, commence feeding, giving less grain at first than when the cattle have become used to it. A steer must be kept full of rough feed, to fatten on the grain he may get. A feed or two a week of roots or cabbages will be found beneficial and promotive of the health of the animal.

After the corn has become hard, I think it preferable to crush corn and cob and feed this meal. I think it will pay well. Cattle will thrive better and a less quantity will do.

By growing of pumpkins every ten and twelfth row in your

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corn, and when the vines begin to run, I do not disturb them while plowing. This I think is better than to plant them promiscuously all through the corn, or to plant alone.

Dairy cattle ought to be managed with care through the winter, allowing plenty of feed, and if milk and butter is an object, suitable feed with regard to its production ought to be given. I think however, that a cow, to do well in a dairy, ought to go dry three months in the year to recruit. She will have a stronger and better calf and give a more liberal quantity of milk. Good dairy cows will not lay on much flesh while giving milk; seldom will a good milker keep fat.

In my opinion the crosses of our native stock with the Durham or Devons, are the best adapted for the dairy purpose, and the steers which may be raised are of sufficient size to make good cattle to feed or work. In the thorough-bred Durhams good milkers are the exception, rather than the rule.

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EMBELLISHMENTS OF A COUNTRY HOME.

By Tyler McWhorter, Mercer county, Illinois.

Let others praise the architectural piles, the marbled columns, the glitter of art and the costly embellishments of the crowded city—where hoarded wealth, that has been abstracted from the hands of honest toil, displays itself in the decorations of fashion—but from the pent up views of walled streets, let *me* hasten to where the pure breezes of heaven freely play over the green landscape, where the leafy boughs spread their cooling shade over my head, while far away, on the broad old prairie, the glowing beams of light are softened to the eye—

> "Where the tints of the earth and the hues of the sky
> In color though varied in beauty may vie"—

From the ceaseless din, the tainted air, and the crowded street of the city, let me steal away to some sunny bank, where the light zephyrs bear along the sweet fragrance of opening flowers, where the warble of birds, the murmur of the dancing streamlet and the balmy freshness of nature can soothe and tranquilize every fevered disturbance of the mind. Let him, to whom the varied beauties of the smiling earth impart no delight, go to the mart of trade and fashion; but give me the free air that waves the green meadows and rustles the fields of growing corn—let me enjoy the rich bounties of the orchard and the garden—give me the social tranquility and all the rural endearments that cluster around—

A COUNTRY HOME.

And this is the subject to which it is proposed to call the attention of the reader. We live to enjoy happiness; and the happi

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rounded and associated has its modifying influence. Then let him who would cultivate a love of home, contentmeut, and the finer sensibilities, in his own mind—and more especially in the minds of his children—study to make a place PLEASING AND DELIGHTFUL TO THE SENSES.

As fine strains of music greet the ear and tranquilize the mind, so, also, pleasing objects meet the sight and impart a more happy and abiding influence. Then, how important that the scenery and objects that are almost continually before our sight should be such as most delight our senses.

With the individual that has been reared in a pleasant home—in a place surrounded by interesting scenery—in the reminiscence of that childhood, the fondest associations of memory will ever cling around "THE OLD HOMESTEAD;" and, with true emotions, *he* may sing—

"How dear to my heart are the scenes of my childhood."

The object of this essay is not to recommend an extravagant outlay for costly dwellings, or homestead embellishments. Nothing should be recommended that will not accord with economy and republican simplicity. Having been for twenty years a resident of the western states, we well know the many things that press upon the care and attention of the western farmer; and will endeavor to offer some practical suggestions, with due regard to the cost of labor and expense of doing things. And let it be distinctly understood, that the following hints are designed for those who have, with their own hands, sustained the dignity of labor, and added to the growing greatness of our state. It is not expected that people can do everything at once; but in arranging things about a homestead it is very important to *start aright.*

In a short essay published in the reports of 1855, we labored to show that all correct taste in landscape gardening must spring from a love of nature; and that the most pleasing forms and aspects are always obtained by imitating the scenery of nature. And the same position, as a foundation principle, will be adhered to in these remarks.

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THE LOCATION.

One of the first objects to be considered in the location of a place is LANDSCAPE EFFECT. And here arise two entirely distinct considerations:

1. The appearance of the grounds when viewed from the house.

2. The aspect of the place when viewed from the main road, or some other position.

On this point a decided difference exists between the feelings or fancies of the English and the Americans. The Englishman prefers a situation quite off from the main road; and the entire scenery of the place is arranged with reference to the pleasing effect when viewed from the mansion. Or, if adjacent to the highway, masses of trees are planted so as rather to hide the place from view—sufficient at least to give the whole an air of seclusion. The Englishman can hardly feel that to be his own, which is equally enjoyed by every passer by. But the American generally has decidedly a different fancy. And, it may be remarked, that if there is anything in the work of the immortal author on Landscape Gardening, that will never wholly meet the American feeling, it may be presumed to be his proclivity to favor the English fancy for seclusion.

The American must be situated "on the road;" hence THE HIGHWAY stands connected with our subject, as a matter of consideration. And here the common practice justly comes up for condemnation of forcing all our roads on a *straight line*, over hill and dale—whatever may be the obstacles—whatever the expense—whatever the inconvenience to the traveling public, *the road must be cut through*. This uniform adherence to straight lines and square turns in laying out roads, regardless of make of ground, is an outrage on good taste, economy and common sense. Observe when a road is allowed to take graceful windings, to suit the make of ground—how beautiful, how *natural* are these easy meanderings! And how light and free the willing steed moves the carriage around the foot of the circling hill! And above all, what interesting situations these natural turns of the highway afford for

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genius. He must and will square up and straighten things—if it were possible it may be supposed he would even straighten the arch of the rainbow! As he extends his industry over the wide domain he is ambitious to give his own labors a distinguishing feature; and the greater changes he can make, on the natural face of creation, the more things present, to his ideas, an aspect of civilization.

In traveling over our state, in its primitive condition, abundance of beautiful situations for country residences present themselves to our view. But, alas, as the country settles the most interesting situations are overlooked, or the vandal hand of frontier civilization soon despoils them of all natural beauty. As an example, a few years ago one of the loveliest natural situations might be seen along the Mississippi bluff, in Rock Island county. The road meandered along the foot of the bluff, at a sufficient line of elevation to command a view of the fertile bottom lands; while, on the other side, the bluff ascended in picturesque irregularity, and was clothed in sylvan beauty, with a scattering growth of young timber, extending in broken groups to the road. A gentle swell presented a natural situation for a dwelling. A few years passed; the place was located; a farm extended over the bottom; the road was distorted from its natural place; a house, that is an outrage on good taste, was erected on the very spot; the industrious occupant had cleared away the young timber; a portion of the poles were ingeniously constructed into a corn crib, that occupied a conspicuous position; and a goodly wood pile, in *front* of the house, revealed the fate of the remainder. Probably, as the enterprising man becomes able, he will "fix up things," embellish his door yard with a picket fence, and perhaps go to a nursery to get ornamental shrubbery.

But, returning to our subject, in choosing a situation in conformity with the American disposition to live near the road, and to have the place present a dignity of appearance when viewed from the road, the house should occupy a piece of rising ground, ascending from the highway; and the place can be made more interesting if some portion of the adjacent grounds is somewhat undulating.

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nearly level, more breadth is needed in front—not less than seven or eight rods—and a building always looks larger, and the whole aspect of the place more grand and imposing, from a distance of about sixteen rods. The amount of ground thrown in front of the house, however, should depend somewhat on what arrangements are made to keep the place in order.

It may be regarded as very fortunate if a natural growth of young timber is on the grounds, so that a luxuriance of shade may be enjoyed at once. The value of a living stream of water, if situated to afford water for stock, should never be overlooked; and, if it has dry pleasant banks, nothing can give a greater charm to the rural scenery of the place. In connection with the location of the dwelling, we are to consider the convenient and—

PROPER POSITION OF THE APPENDAGES.

The neat appearance of the homestead almost wholly depends upon getting these things all in their proper place. Let it be held in view that all such essentials as barns, stables, hog yards, stacks, sheds, corn cribs, pig pens, hen coops and fenced up gardens are objects of utility, but not of fancy. One would suppose that many of our farmers specially pride themselves in making as great a display as possible of their worldly abundance. To say the least, it is a violation of good taste to place any such objects so as to interrupt any view either way of the road, or across the road in front of the house. Such things should occupy a back position. Generally, the most convenient place for the barn, and objects naturally connected with it, is somewhat back of the house, with a lane passing from the barn yard to the road. If the barn is back of the house, it should generally be at a sufficient distance to admit the vegetable garden between the house and barn, and also space near the house to get round with a team.

To give a pleasing expression to a place, it is necessary to avoid getting too much hemmed up on the front side of the house, and secure, as far as possible, an extended view of clean surface; not a dead, lifeless surface, but a surface of living green spread forth

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ARRANGEMENT OF SHADE TREES.

No definite rules can be given on this subject; but general principles are inferred from what we most admire in the scenery of nature. The eye is always delighted with a stretch of smooth, green turf, beneath the shade of trees; and it is rendered more charming if the surface lays up to our view, in ascending swells of ground, openings or vistas, for the alternate play of sunshine and shade enliven the scene.

It may always be observed that a fine dwelling, or a pleasing scope of landscape, presents a more striking feature when the view is broken beyond it by masses of timber; consequently, to give the most interesting expression, we would generally desire, as far as practicable, to break the view in the back ground by planting trees of a large growth back of the house, extending the same off at the wings, which should finally fall off in broken lines towards the road. Then the remainder of the ground should be planted according to the extent and features of the place. If there is a broad, open surrounding prospect, a few scattering trees towards the extremity, and two or three neatly formed evergreens near the house, may be all that is needed. If there is more extent and variety of surface, and more diversity and interruption in the surrounding views, it may be desired to give a more sylvan feature to the place; then trees should be planted in not very dense masses, but in scattering groups, thrown into irregular lines, so as to leave occasional openings or vistas through to the road. It is through these openings, also, that the passing traveler catches a view of the place; hence it is better to have them from an oblique direction than exactly in front, as a building always presents a richer appearance from a corner view; and, also, from such positions the eye catches more extent of landscape. The heaviest trees and thickest groups should generally be at the extremity of the grounds, next to the road. Thick masses may be planted on steep banks. In rather sequestered places, perhaps at the foot of steep banks, low spreading trees may be planted, mingled with

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frame work arbors bear no comparison. The Bitter Sweet, [Celastrus Scandens—ED.] with its glossy foliage in summer, and bright orange colored berries in winter, looks beautiful spreading over the top of a small tree. Evergreens add greatly to the rich appearance of a place, and present a feature of life and grandeur even in the desolation of winter. They are most appropriate to elevated and diversified situations. They may be planted on the sides of steep banks; or they may be mingled with other trees, at the wings of the house, where it is desired to break the view. If a steep bluff ascends back of the house, a few cedars, scattered over the rugged ascent, make a magnificent appearance. Also, two or three are always appropriate near the front of the house, trimmed in symmetrical form.

Let it be understood that these directions are for country homes, where it is supposed there is room to give a full expression. The means of doing it all are within the reach of any one that is able to own a home. In the—

CHOICE OF TREES,

As the first word of council, we would say, look to the native forest. The White Oak would be the first choice if it was not of such slow growth, and difficult to transplant. It is adapted to thick masses, or single positions, and is appropriate in almost any situation.

The Burr Oak, also, makes a good shade tree, and it presents a striking contrast among other trees in the winter.

The White Maple is appropriate in almost any place; and if a luxuriant shade is desired, in the shortest space of time, and with the least possible expense, this might enter most largely into the composition. The cheapest way is, to raise them from the seed. The seed ripens about the 20th of May, and should be gathered and planted immediately. They will grow two or three feet high the first year, and the second may be transplanted. They grow

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The Sugar Maple should never be omitted. It is easily transplanted, and, like the White Oak, is appropriate in almost any situation; a more beautiful tree than the White Maple, but of slower growth.

The Elm is easily transplanted, and should never be overlooked. The graceful form of its broad top should assign it a place rather by itself; and it better becomes a level spot of ground.

The Coffee Nut (Gymnocladus) presents a striking contrast among other trees; is easily transplanted, but of slow growth.

The Buck Eye may be transplanted; it leaves out very early, and is of quick growth. Its proper place is on level ground, and not too near the house, as its odor is not pleasant.

The Chestnut makes a large, splendid shade tree, and, when young, is not difficult to transplant.

The Tulip Tree bears transplanting; beautiful foliage; rapid, upright growth; like the Chestnut and Elm, it needs room.

The Linn, Blue Ash and Honey Locust are also worthy of notice; and when smaller trees, of low form, are desired, the Siberian Crab, White Thorn, Persimmon, Judas Tree, Mountain Ash and Wild Crab Apple may be noticed.

This treatise being intended mostly for the benefit of those who love to do something themselves; it is thought proper to add some suggestions in regard to the—

PRACTICAL WAY OF DOING THE WORK.

Having the house built, or its location decided, if there is not on the place a natural growth of timber, the ground is all plowed and smoothly harrowed. Then the entire design is surveyed and staked out. In arranging the position of trees and groups, avoid everything like geometrical forms; a novice may be assisted by cutting a quantity of bushes and sticking them up where trees are contemplated, and viewing them from different points of observation.

Trees that have been raised in the nursery are better; but, if

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The Yankee nation having gained some notoriety in the use of the *pocket knife*, it may be well to add, as a word of admonition, that trees should not be "trimmed up" too much. Allow them to grow in their own natural beauty. After the trees are growing well the ground should be smoothly prepared, in the fall, and thickly seeded with *spear grass* (poa pratensis) early in the spring. It is generally best not to give the walks a finished construction until after the ground is seeded. The grounds should be entered from a side direction, and the road or walk should not be exactly straight; though we should not depart from common sense to make it crooked. Everything should appear natural. If their is a turn in a walk, some reason should appear for it, such as curving around groups of trees, or swells of ground. Neither should walks be made where there is no need for them—that begin no where and end no where. They may lead to the barn, orchard, garden, to a spring of water, or to some sequestered shade with rustic seats, or to a rustic arbor. In deciding the turns of a walk short pieces of cornstalks may be laid along on the ground in a continuous line, and adjusted by the eye. If only a grass walk is desired, little light furrows may be cut along each side with a sharp spade.

The great trouble with graveled walks is the difficulty of keeping them clean. Fine *knot grass* and white clover will work over them, which gives them a slovenly appearance. It is believed this difficulty would be removed if the walk was constructed with a bed of *coal ashes* underlying the gravel. Roads and walks made on ascending ground, on our soil, need gravel to prevent them from washing. An amount of ground can be appropriated to flowers and small shrubbery, according to a person's tase—or, according to the amount of time people are willing to devote to the care of such things.

In laying out the design of a place the cost of keeping it in order should always be considered. A small place kept in good order is more to be admired than a great breadth of tall grass. A place

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small piece of adjacent ground, together with the fruit yard and vegetable garden, into the same field with the orchard, from which all animals are excluded, leaving the broad scope in front of the house to be pastured. By this arrangement only a small amount of fancy ground will need to be kept mowed.

In my former essay such fences were recommended as least obstruct the view; and it was suggested that if they were painted, it should be with a color corresponding, nearly, with the bark of the surrounding trees. Some appear to regard this as a mere arbitrary idea; but suppose a charming scope of landscape to be stretched before you, with no intervening obstruction to the view —then suppose, all at once, a *glaring white picket fence* is thrown up before you! There it stands, in self-display, as much as to say, "look at *me*—look at nothing beyond me." A picket fence is very appropriate *for a poultry yard.* A very appropriate fence may be constructed along the highway, with a board a foot wide at the bottom, and a strong net work wire fence, three feet wide, above. Such wire fences are manufactured in the east, and are not expensive.

In the composition of all the things that together constitute the homestead,

THE DWELLING

Is *the object*, to which everything else holds a secondary relation. It should be seen—should present an attractive feature; and when it stands back in a luxuriance of verdant scenery, it has a more cheerful expression painted some rather light color. But there is no reason why every house should be the "whitest of the white." White looks very well; but he who thinks this is the *only* appropriate color, should draw a lesson from the variety of nature. White is a pretty color for flowers, and a pretty color for dwellings, but it does not follow that we would more admire the flowers if they were *all* white, neither are dwellings more objects of our admiration for being all white. If all creation were white we could no longer admire the color. A dwelling presents a lively expression and a richer appearance with the trimmings

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soft, pale orange shade, &c. In mixing paints the colors must be well ground in oil before mixing.

The house should present a becoming appearance, and afford comfort and convenience to its inmates; but this does not imply that it should be a costly edifice. It is feared there is an increasing extravagance, among the upper classes, in building over-costly dwellings. The wealthy set the example, and men of more limited means ruin themselves in trying to follow.

If there is any subject on which a book is needed, it is on the construction of cheap and [illegible] dwellings. A house may be built in a square form, [illegible] high *hipped* roof, *modillion* cornice, good projection [illegible] brackets, with a cheap ballustrade [illegible] style. Such a house presents a good appearance, and [illegible] amount of room at a moderate expense. If a [illegible] in the situation seems to demand a rural [illegible] buildings can be built appropriate to a country place without so much little, carved, expensive, flimsy trimmings. Our present subject does not relate to the internal arrangement of the dwelling, but to the external feature of the homestead. Among the many evils that demand reform in our country is the habit of American females of excluding themselves, almost wholly, from the open air. Our homesteads should have more outside attractions. If the pale faced, consumptive [illegible] of the drawing-room and parlor would [illegible] with the fresh air of morning, and spend the [illegible] in the flower garden that they spend in [illegible] needle-work, it would impart life and buoyancy to their spirits and the bloom of health to their cheeks. Better for a house to be without a "parlor" than without its open air attractions.

That some of the foregoing suggestions may be better understood, it is thought proper to present the following—

DESIGN FOR A HOMESTEAD.

[*See plate No. 5.*]

The house, A, (fig. 1,) stands on rising ground, over 10 rods from the road. The highway, H, curves around the situation, so as to keep on level ground. The barn is seen at B, northeast of

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finally unites with the barn yard; and thus the whole extent, in front and east of the house, extending to the barn yard, is pastured by sheep, including nearly two acres, but will appear to be much larger. The garden is located at C; the orchard at D, protected, on the north, by a hedge. A walk leads to the road eastward. Another walk winds off east of the house, through a dense shade, down to a natural arbor, at the foot of a declivity. The same path comes up the ascent and leads towards the road. Another path strikes off to where the sheep are turned from the lawn into the barn yard.

A full view is preserved westward to the orchard and road; also, several other lines of view are had to the road, through vistas of the lawn, and the dwelling is seen from the road, for some distance, from both the east and the west. Situations similar to the foregoing can be arranged almost any where on the rolling prairies.

We will conclude this essay with a—

DESIGN FOR A LEVEL SITUATION.

[*See plate No. 6.*]

This design, (fig. 2,) is on half the scale of the former, and is explained with the same letters. Also, G indicates the farm land —F the wagon track along the hedge. The house is 16 rods from the road. The piece of ground appropriated to the lawn extends 40 rods on the road and 20 rods back, and contains 4 acres; but being wide on the road, and covered with scattering trees, it looks much larger than it really is. Here we have a tame, level situation, with the road passing directly by. It will not admit such interesting diversity, yet even here we can have a breadth of beauty and an air of grandeur. We do not have such a variety of shade, but we have the broad, extended views. Every place needs a small pasture, and we have it here with all the charms of a park. If we are a few rods further from the road

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REMARKS ON FARM COTTAGE ARCHITECTURE.

By James A. Miller, Alton.

DESIGN FOR A FARM COTTAGE.

[*See plate No.* 7.]

In the preparation of this design, the first object has been to give the farming community a plan which would, with graceful outlines, combine comfort and convenience in the interior arrangement, with cheapness of construction.

In order to its proper effect in the landscape, this cottage should be located on a gently rising ground; then from the verandah the prospect is not limited to the immediately surrounding land.

The floor of the verandah, and the first floor of the house, are to be three feet above the surface of the ground—the fruit, vegetable and provision cellars being beneath this floor. From the verandah is the hall entrance; to the left, a door leads to the library; in front is the parlor door, and to the right that to the dining room, which is connected with the kitchen. A closet is under the stairs leading to the second story.

In the second story is a bed room, with a balcony, one children's bed room, two spare rooms and a servants' room.

The library may be conveniently used as a sitting room.

The first story is twelve feet high. The second one, the library and dining room, is eleven feet, and the rooms over the parlor seven feet at the lowest, and nine feet at the highest part.

The foundation and cellar walls should be of rubble masonry, to the surface; thence the three feet of wall should be laid in courses.

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The roof projects three feet all around the house, and is covered with one cross tin.

The verandah may be covered, but in this plan it is wholly grown over with vines.

This house is estimated to cost—

For Stone work and material	$185	00
" Brick work	350	00
" Carpentry	865	00
" Plastering	320	00
" Tinning	105	00
" Glazing and painting	176	00
Total	$2001	00

With a somewhat greater outlay, the walls may be furred, and then plastered, which will insure a greater degree of dryness and warmth in winter.

Some remarks may not be inappropriate upon the manner of building in the country, generally. The practiced and cultivated eye will observe, in most parts of our state, a monotony in the general features of farm buildings, the chief differences consisting in the fact that some of the more wealthy place a quantity of gingerbread work, such as half a dozen O G or other mouldings above each other; or, it may be, they copy the portico of some house in the city, where ground is scarce, and awkwardly attach it to their country house, where ground is abundant, and where a *verandah* would, of course, be far more becoming the place, and would, also, be of immense service.

Again, we see a house which gives evidence, in its construction, of having been imported from New England hills and cliffs and towering pines, among which scenery, doubtless, its tremendous gables looked in keeping, but which, in our level, prairie country, produce a discordant sensation upon the organ of fitness, in the beholder. Further on, we see houses which, in architectural proportions, would grace a street in any city, being built quite as much for show, even there, as for any practical purpose, but which, in the broad country, appear entirely out of place. Per-

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should exhibit, as accurately as possible, the intent of the builder; especially, the farm cottage should indicate that the proprietor has a parlor for his friends, a library, dining, living and bed rooms for his family. A house built even in the Italian style, (which is most appropriate for the landscape and climate of Illinois,) should show, by its chimneys, that there is a fireside within. Chimneys should not be *hidden*, as they are in some of the so-called *fine houses*. This habit of hiding chimneys originated in closely built cities, where a factory-like chimney, on the front of a house, would most certainly fail to be highly ornamental; but not so in the country. The chimney of a country house, built in good proportions, (and proportions cost nothing,) may be made highly ornamental to the structure.

It is an old saying, "there is no accounting for taste," but I would say, "there is no accounting for *bad* taste." "Good taste is an excellent economist—it delights in producing great results by small means; whereas, bad taste is always sighing after the new and rare, and as it fails in producing anything *beautiful*, it determines to make it fine." [*Rodgers' Epistle to a Friend.*] In our opinion, the climax of absurdity is capped by the prevailing fashion (?) of covering brick or stone houses with a funeral shaded *mastic*. The covering up of the material of the house is a *deception*, and, though not *criminal*, yet it reminds the posted beholder of the vender of galvanized watches.

The *color* is neither a contrast nor a harmony; and as we judge the man from external appearance, so we should look in such a house, for a purse-proud man, who left the city to prevent his friends from eating his dinners.

A country house should, *first*, be well situated, be conveniently arranged in its interior, have a neat and graceful exterior, which shall harmonize with its immediate and general surroundings, and be painted, (if painted at all) with a light color, but not white, and never be masked, so as to pretend to be of better or more costly material than it is. Truth and nature may always be permitted to go hand in hand.

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failed to be attractive, because of the incongruous style and situation of the main feature—the house. Therefore, in order to make a farm in the highest degree valuable, all the buildings and their locality should receive close and tasteful attention in their construction and selection. The flower garden in front, and the kitchen garden at the side of the house, should receive, in their arrangement, a large share of cultivated judgment. We can conceive no more rational excuse for the farmer who permits his cattle the free use of what should be his fruit yard, and his hogs to burrow all around his house, than for the cabinetmaker who should eat his dinner from the contents of his glue pot.

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TREATISE ON THE ADVANTAGES TO BE DERIVED FROM THE CULTIVATION OF FLOWERS.

PREMIUM.

By O. Ordway, Lawn Ridge, Illinois.

The intelligent observer finds a never failing source of delight in witnessing the endless varieties of form and color with which the vegetable kingdom is adorned. He naturally inquires, whence and for what purpose is this wondrous display of elegance and beauty? If his mind be in sympathy with nature, those fragrant, starry gems, so profusely scattered over prairie, forest and hillside, will proclaim to him their own origin and mission. He cannot fail to perceive the exquisite adaptation of such forms of symmetry and grace, with their sparkling and inimitable hues, to awaken the finer susceptibilities of his nature. Flowers have been held in great esteem, in all ages, and among all people, who have made any advances towards civilization. Their images are interwoven with the progress of taste, art and literature. They are enshrined within the heart of genius, and furnish the richest garniture of his lofty delineations. To the interpreter of nature, these floral messengers are

——"living preachers—
Each cup a pulpit—every leaf a book."

Flowers may thus be regarded as messengers of "peace and good will" to mankind; and it follows that their cultivation has an important bearing upon our happiness and improvement. Many of the advantages to be derived from the cultivation of flowers are apparent to all who have given to the subject any share of that attention which it claims; but among the benefits flowing from this source, the less obvious are often far from being least important.

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garden ornamental plants; and still fewer shall we find so utterly destitute of worldly comforts as to be unable to afford this inexpensive luxury. In almost every region beautiful flowering plants may be found, indigenous to the soil, and ready for transfer to any place where they may be wanted for cultivation. There is, thus, abundant room for the exercise of taste in the selection, and skill in the management, of such floral embellishments as are freely proffered to all. Many of the flowers which abound, in their wild state, on our prairies, are cherished elsewhere as beautiful exotics.

The invalid often finds his spirits invigorated, and his health improved, by cultivating a small garden, or tending a few flowers. As he watches their unfolding beauties, his thoughts are diverted from his bodily ills; and, when proportioned to his strength, no exercise can prove more salutary than the care bestowed in ministering to their growth.

The culture of flowers furnishes an elegant recreation to the fair sex; and conduces to mental refinement, no less than to bodily vigor. England's great epic poet appropriately pictures our first parents, in their state of primeval innocence, as devoting a large portion of their time to this employment. As they attentively watched the silent processes of growth and development in these objects of their care, from the period of germination to their crowning splendor, how must their views of the divine attributes have expanded? and what could better express their emotions than the langnage of the poet?—

> "These are thy glorious works, Parent of Good!
> Almighty! thine this universal frame,
> Thus wondrous fair! Thyself how wondrous then—
> To us invisible, or dimly seen
> In these thy lower works—yet these declare
> Thy goodness beyond thought, and power divine."

The inmates of palace and cottage have alike derived some of their purest pleasures from the culture of flowers. The wisest monarch on record thought it not unworthy his royal dignity to spend a portion of his time in planting gardens and orchards, and in acquiring an intimate knowledge of the vegetable kingdom; and, doubtless, derived more true enjoyment in meditating upon

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of these." Other royal personages, of both sexes, might be cited, who have enhanced their pleasures, and increased their knowledge, by the attention they have given to the cultivation of flowers; and among those whose honors infinitely surpass any that mere hereditary distinctions could bestow—those rendered illustrious by the highest order of mental endowment—we find the highest appreciation of nature's handiwork, in the production of flowers. The labor we bestow in gardening, of which the cultivation of flowers forms an indispensable part, extends our acquaintance with vegetation, and better enables us to appreciate its variety and beauty. It is a law of our natures to prize benefits in proportion to the pains taken in securing them. A familiar acquaintance with the beautiful works of creation around us, is one of the greatest blessings of life.

> "To him, who, in the love of nature, holds
> Communion with her visible forms, she speaks
> A various language."

The society of flowers is pure and elevating, and no one can be lonely who is fitted to enjoy companionship with these gentle teachers.

It is a just and oft-quoted saying, that "whoever makes a blade of grass grow, where none grew before, is a benefactor of his country." In like manner every person, who increases the forms of beauty around him by the cultivation of flowers, is deserving of commendation. Those floral gems, which are indebted to us for their birth, richly repay us for all the care bestowed upon them by their grateful smiles and fragrant offerings. All visible forms of beauty are kindred, and imperishable; for they are but reproductions from the divine mind. Truly has it been said, "a thing of beauty is a joy forever."

An eminent philanthropist, near the close of his life, remarked that "he looked upon corn, and things of that nature, as the bounties of Providence, but he regarded flowers as His smile." Who-

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botany, and the kindred branches of natural history. The boundaries of science are constantly enlarging through the investigations of those who have been directed to scientific pursuits by their love cherished for the beautiful objects of nature around them. The most eminent among the walks of science have been persons of this stamp. The culture of flowers has thus been of incalculable benefit in stimulating to the acquisition of knowledge; and let the desire for mental improvement be once heartily cherished, and no limit will be set to its attainments. The close observer of the forms and habits of plants derives pleasure and instruction from the striking analogies they present to human life. Most flowers are susceptible of vast improvement by cultivation, and many kinds become so transformed, in this way, as to bear scarcely a resemblance to their original forms and properties. Some of the most splendid specimens produced in our gardens and greenhouses would attract but little notice in their wild state. So, also, some of our most wholesome vegetables, and delicious fruits, have been produced from plants which originally offered nothing but what was harsh, ill-flavored, and even pernicious to the taste. A person interested in the cultivation of flowers will be disposed to acquaint himself with their organization, and the laws relating to the germination and growth of plants; and will observe the curious phenomena connected with certain species. Some plants are so sensitive to atmospheric changes as to answer for barometers. Others, by the regularity with which their flowers expand or close, indicate certain hours of the day. The Polar plant, so abundant on our prairies, is an unerring guide to travelers when the sun is obscured by clouds. A recollection of the fact that Samphire, though growing upon the sea shore, is never submerged by the waves was the means of saving the lives of four shipwrecked persons, who were cast, one stormy night, upon the breakers off Beachy Head, in the year 1821. Thus, the knowledge acquired by close observation, of apparently unimportant

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Flowers are well adapted to inculcate lessons of faith and hope, and happy is he who surrounds his home with these mute, but eloquent, teachers, and whose heart is open to their influence. All readers are familiar with the account given by Mungo Park, of the effect produced upon himself when, as he found himself alone and destitute, in the wilds of Africa, five hundred miles from the nearest European settlement, he accidentally discovered, while lying upon the ground in despair, a small moss of exquisite beauty. His trust in God, who careth for all the works of His hands, was renewed, and he was encouraged to persevere in a journey which just before had seemed wholly impracticable.

An interest in other branches of gardening is often awakened by a little attention given to the cultivation of flowers. Where means are not wanting the transition is easy from the culture of ornamental plants to the fruit growing and culinary departments of horticulture. The advantages arising from the cultivation of flowers are not confined to the individual who thus seeks the gratification of his taste, or an aid to scientific progress. The blessings resulting from private enterprise are diffusive in their nature, and society is benefitted by whatever assists in extending an acquaintance with the beauties and resources of the vegetable kingdom, from the cottage *parterre* to the *Jardin des Plantes*, of Paris. A few flowering plants, judiciously disposed, add a most attractive feature to the meanest dweling. Nothing is more admired, by the passing traveller, than such evidences of refinement as are witnessed in the cultivation of trees, shrubbery and flowers. Persons of intelligence are often guided in their choice of residence by such exhibitions of taste in a community.

Let us glance at those delightful rural districts sometimes met with in England, and more rarely in our own country, which owe their inviting external charms more to the taste and skill of their inhabitants than to any superiority of natural advantages. The neat cottages, half concealed by graceful climbing plants, festooned with flowers; the finely kept trees, shrubbery, lawns and gardens, present an indescribable air of comfort and domestic enjoyment. Contrasted with such scenes, how cheerless do those homes appear where all forms of vegetation seem to be proscribed save those which have immediate reference to pecuniary profit,

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Nature teaches us to cherish her floral gifts by the new attractions with which she invests them when adopted into our gardens; and observation suggests the moral, social and intellectual advantanges resulting from the cultivation of flowers. If there are those who practically disregard these advantages, or question the utility of ornamental gardening, it is not in consequence of superior discernment, or because their time is all better employed. If they have not that love of the beautiful which seeks one of its forms of outward expression in the cultivation of flowers, it indicates nothing but an utter neglect or destitution of one of the most ennobling attributes of the human mind, as an inability to appreciate music evinces an incompleteness of mental organization rather than a want of adaptation in the strains of harmony to refine and elevate the feelings. Utility comprehends whatever contributes to true enjoyment; and, though physical comforts, with the means of supplying them, are necessities of our natures, yet, had we no pleasures transcending these, we could hardly claim precedence over the brute creation.

We are so accustomed to regard the variegated splendors of the vegetable kingdom as matters of course, that we are not apt to consider the important part they fill in the economy of nature. But were vegetation to be divested of its glorious forms and coloring, earth would present the appearance of a waste as dreary as the nightly heavens without their brilliant constellations. Nature robes herself in beauty for our good, and opens for our acceptance the exhaustless treasures of her storehouse. She is faithful to our interests, and "never did betray the heart that loved her." Let us open our hearts to her influence, and cherish the flowers she proffers us as her choicest gems. Let them illumine the pathway of life, and adorn our last resting place, as emblems of immortality more exquisite in beauty than the sculptured marble.

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ON THE CULTURE OF THE VINE IN ILLINOIS.

PREMIUM TREATISE.

By H. L. Brush, of Ottawa, Illinois.

"Every man under his vine and under his fig tree," was an image of luxuriant and peaceful repose, amid surrounding plenty, three thousand years ago. This language the spirit of inspiration has chosen to portray the security and abundance of the world's last best ages. The soil we occupy, the climate we enjoy, our free institutions, afford us all the requisite conditions for the realization of that ideal good. In our future will the vine form so prominent a feature in the emblem of our enjoyment? We wish that it may. We regard it as a precious boon. We prize it for its many beautiful and hallowed associations in sacred story, as the symbol of promised good, but above all, for its bounty and utility to man.

It is gratifying to observe that the cultivation of our native grapes, and production of choice varieties by hybridization are enlisting such general attention. All nature affords a generous encouragement to such endeavors.

The vine is a hardy plant, and will grow so far north that it can do no more than blossom. Hot houses and cold graperies are provided in countries where the uncertainty of climate prevents any attempt at cultivation with a view to profit. But no such necessity is laid upon the denizens of our western states.

The vine luxuriates under our warm and genial sun, in our dry even climate and calcareous, loamy soils. No exotic grape grown under glass, ever surpassed in luxuriance our unrivalled Catawbas, grown in open air and cultivated by the acre, like corn. Were we so disposed, we could render the fruit of the vine not only as "plenty as blackberries," but so abundant as to leave nothing further to be desired. And doubtless the day is not far

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conditions of soil, for the cultivation of the vine in our state; and of the inducements to engage in this work. But before entering upon this topic, it may be well to suggest some reasons for commending this much neglected and much abused fruit. While some would place as first, its rich and delicate flavor, we will refer to its wholesome and salutary properties. In own judgment it surpasses all fruits in its happy combination of acids, mucilage, and saccharine matters, and is peculiarly fitted as an antidote and remedy to the diseases incident to a malarious climate.

The use of wine and grapes in certain kinds of fever is, at least, as old as Hippocrates. The Rhine wines are of diuretic quality, and the Germans say, "keep off the doctors." They are not alone in commending grapes and pure wines in the period of convalescence immediately following low fevers. According to Redding, "old thick wine is still a remedy in Cyprus for tertian and quartan agues, common in that and some other Greek islands, where the old wine used to burn like oil." For sanitary and medicinal purposes, we regard the tartaric acid of the grape as vastly superior to that of any other fruit, but particularly to the malic (apple) acid. For this reason we would gladly see that which is properly vinegar, *vinaigre*, or soured wine, substituted for that acidified cider, which most ungenerously has usurped its name and office; saying nothing of the dangerous counterfeits which are manufactured and sold under the name of cider vinegar.

Aside from the various applications of its juices, the grape commends itself to us as a most wholesome fruit, whose luscious richness and delicate flavor may with little care be preserved fresh through the entire winter, gladdening its long chill hours with the products of the burning beams of summer and the golden radiance of autumn; or this fruit may be dried and its most valuable and useful properties still preserved in the form of raisins.

"The only vineyards in America are those of American grapes." [*Downing.*] Longworth says, "If we intend cultivating the grape we must rely on our native varieties, and new varieties raised from seed."

The vine, as we have said, is a hardy a plant. It will grow both in cold and warm latitudes, but flourishes best between 35

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vated in any soil that is not wet. It flourishes most in a dry and light soil of a calcareous or loamy nature. A rich, light, sandy loam, on a porous or rocky bottom is congenial. "A black, rich, loamy soil is favorable, from its absorbing heat." Grapes grown on *rich deep soils*, are fittest for the table. But the best table grapes do not make the choicest wine. The dry seasons, so characteristic of our climate, increase the quantity of sugar in grapes, which contain a larger proportion of saccharine matter than other fruits. "That soil which, from dryness and lightness, is scarcely fit for any other culture, is best adapted for grapes designed for wine"—be it calcareous or volcanic. Any light, mixed, friable soil, in which water will not lodge, is congenial to this plant. A hillside, or mound, or ridge, or table lands, with a loose subsoil, present choice locations for the vine. Wines of first character are usually made from vines that flourish among stones or rocky soil. "No wine of tolerable quality is grown on rich, highly dressed lands." From this it will appear that our high, rolling prairies with gravelly ridges, our bluffs, the banks of our creeks and rivers, where the declivities are gentle, afford the requisite condition for choice vineyards. We have, in a word, almost every kind of soil and climate to meet the demands of nature, or the wishes of those who desire a pure wine, or a varied supply of fruit.

As respects the methods of propagation, vines may be produced abundantly either from cuttings or layers. "Vines raised from cuttings *live longest and bear most fruit.*" [*Redding, p.* 42.] The readiest way and much the cheapest to start a vineyard, is to procure good cuttings in the fall, if possible. The process is then very simple. Having plowed and subsoil-plowed your land, mark off your vineyard *carefully* with line or stakes, that the rows shall be straight both ways, offering no obstruction to future cultivation. Holes are made with the spade from three to four feet apart in the row, *in rows six feet* apart. Two cuttings are planted in each hole in a slanting direction, with their tops inclined to each other, and the lower ends ten inches apart. Press the soil firmly at the base of the cuttings and *have the upper eye just covered.* If both cuttings grow, remove one of the plants in autumn. Cuttings are made from sound last year's wood, and should have four or five eyes, with a clean smooth cut near the lower eye. If not planted out at the fall pruning they should be tied up in conve-

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strike root with great certainty. The cultivation of vegetables the first and second seasons, between the rows, will facilitate in keeping the ground light and clean. The young plants should not be pruned the first year. The second year, before sap starts, cut the young vine down to one or two eyes and force the growth into one main shoot, or cane, breaking off suckers and superfluous shoots. Stakes of any durable wood, six or seven feet long, and two or three inches square, should be firmly planted to each vine. The third year, before the buds swell, cut last year's shoot or cane back to two eyes, *let both grow*, tying them to the stake, as they advance, with rye straw; the laterals or auxiliary branches on these canes should be rubbed out as high as eight or ten eyes. As soon as weeds get fairly started in the spring throw the earth from the vines with single plow, and keep the ground clean and light with the cultivator. Destroy every rosebug and green worm, which if not sedulously watched, will so increase in a few seasons as to devour the blossoms of the entire crop.

The fourth year you have two good shoots or canes eight or ten feet long. Spring pruning this year is usually done in February. Some prune in November previous, which we consider as the proper time. Cut back the best and closest jointed cane to ten or twelve eyes; the other cane cut down to a spur of two or three eyes, to make bearing canes for next season. When the sap begins to flow the long cane is bent round in the form of a hoop or bow, and secured to the stake with willow ties or twigs—one at the bottom, one at the top of the circle and the third fastens the end to the stake, or to the vine below. The vine bears its fruit on shoots of the current year, starting from eyes of the previous year's wood. One bearing shoot, or bough, having from ten to twelve eyes, will throw out as many bearing branches. From these ten or twelve bearing branches select from fifteen to twenty bunches; *break off all the others.* A larger number overtasks the vine and impairs the quality of the fruit. If the vines occupy more room than 3 by 6 feet, then each vine may produce pro-

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subsequent years, cut away the old bearing wood. The uppermost cane is selected for the fruit bough, as in the preceding year. The lowest cane is cut back to two or three eyes, forming the spur. The vine is annually renewed with two good canes, *starting from this spur;* which require the same management every year; thus keeping the old stock within a foot of the ground. Should a vine be lost, it can be replaced by a layer from the adjoining vines. The layer may be put down as late as August, but spring is preferred. The vineyard should be kept in good tilth with the plow and cultivator. Where the slope of the hill or bluff is so steep as to require benching the cost of a vineyard is much increased. Dig or trench the ground all over to the depth of 1½ to 2 feet, turning the top soil under. The ground is formed into level platforms of earth, as wide as they can be made conveniently, supported by a bank of sod or stone walls. Rows of vines, 5 or 6 feet apart, occupy these platforms or terraces, and require the same culture.

Great inducements to enter upon the cultivation of the vine may be found in the utility and enjoyment of a fruit so delicious and wholesome in its properties. But inducements, still greater with some, may be discovered in the marketable value of its products. The expense of cultivation is so small as to bring it within the reach of all classes.

The labors of the vineyard, as contrasted with those incident to the culture of cereal crops, can hardly be compared, in point of pleasure or profit. This is all cheerful work. The gathering of the fruit and the season of vintage are alike joyous occasions. It is the time of dance and song; the great epoch in wine growing countries. Both sexes and all ages mingle together to gather nature's profusion, and make still more light life's burdens. We welcome such toil, because of its enlivening influence on the mind and heart. Such an era of fruitfulness and joy is beginning to dawn already in our country. Four years ago, according to patent office reports, the value of our grape crop exceeded that of the tobacco crop by $10,000.

The cost and productiveness of a vineyard may thus be estima-

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of good grapes. We may, then, safely estimate the average yield of an acre at 120 bushels—a very satisfactory return, considering that our markets have never been half supplied. The Catawba, Isabella and Clinton are our best and most reliable vineyard grapes, although other varieties succeed farther south, and new seedlings, of rare promise, are being constantly introduced. We would, however, caution our friends against large investments at high prices in new varieties, not fairly tested, however highly they may be commended. We would rather encourage attempts at production of new seedling varieties, as affording best promise of hardier and better vines and choice fruit.

Buchanan, in the preface to the fifth edition of his valuable work on grape culture and wine making, says, "he obtained from five acres 4,236 gallons, or 847 gallons per acre, and that the average yield for the whole country did not exceed 400 gallons to the acre." A cultivator of the vine, in Kentucky, says, "the tillage of the vineyard is not so laborious, nor near so expensive, as the tillage and labor of securing the products of an acre of corn or hemp. A man having five acres, which he could manage himself, would find them more profitable than a Kentucky farm of two hundred acres, with three negroes to cultivate it." May we not reasonably expect, in view of facts like these, that our enterprising farmers, in looking to their interests, will not only provide this rich source of national revenue, but also secure to their families the enjoyments and blessings of the vine?

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CULTIVATION OF EVERGREENS.

PRIZE ESSAY.

By Samuel Edwards, La Moille, Ill.

Dr. J. A. Kennicott,

Corresponding Sec'y Ill. Agricultural Society:

Sir—In fulfillment of my promise to try and write something for the forthcoming volume of Transactions, I herewith submit a few remarks on the cultivation of evergreens on the prairies.

My first planting was begun in 1845, and I have planted more or less each season since—have handled in all some over 125,000 plants, obtained from forests of Minnesota, Wisconsin, Michigan, Indiana, Ohio, New York and Upper Canada. Also, from eastern and European nurseries.

When obtained from forest, care should be taken to select plants growing in open exposures, as they are well furnished with roots, of which those grown in the shade are very deficient. Care should be taken to let as much dirt as possible adhere to the roots.

In packing, care should be taken to have the roots well enveloped in damp moss, and the top kept as dry as possible. A good plan for packing, is to select boxes long enough for two lengths of tress, packed with roots in the middle; holes can be made in each end of the box to ventilate the tops. Cleats should be nailed across the box, occasionally, to keep the trees from shifting about and to strengthen the box. When trees are received after having been packed for several days, the roots should be brined as soon as received, and the tops shaded. Let them remain thus for from three to six days before planting. In a dry time it pays well to shade the tops for two or three weeks after planting, or until new roots have put forth. I have succeeded in saving a lot which had

watering pot. At sunrise the straw was replaced. This course was followed for some three weeks; very few were lost.

In spring, from the opening of the ground until the buds of the species are opened, is the proper time for removing quantities of evergreens—just as the buds are swelling, is generally esteemed the *best* time.

Where removed from nursery, of large size and only a short distance, *the* way is to dig around trees at beginning of winter and transplant with a frozen ball of earth. In this mode the growth and beauty of the tree is not impaired. I have had good success in planting from nursery in every month, from March to September, inclusive, by taking care in watering roots well at time of planting, and mulching the ground around the tree well with straw to retain a moisture, which is a good plan to adopt at all times.

A very common error prevails in the minds of most inexperienced persons, that, as evergreens are not indigenous to a prairie country, they will not succeed well here.

They thrive as well on an average as deciduous trees, whether indigenous or not; and my success with the varieties which I class as hardy, has been completely satisfactory.

When purchased from nurseries, I have always found that plants which had been transplanted from the seed bed were much cheaper in the end than those which had not been, though the first cost was considerable the most.

Plants from six to twelve inches in height have succeeded best for distant transportation; smaller sizes suffer greatly from the drouth, so generally prevalent in summer, on the prairies. For this reason I have had poor success in growing them from seed, though taking great pains in shading and watering; and do not believe it practicable.

My *especial* favorites, so far as tested, are Norway and Black Spruce; Austrian, Scotch and White Pine; Balsam Fir; and, for screens, Siberian and American Arbor Vitæ, and Red Cedar. The Irish and Swedish Juniper. Savine. Red Spruce. Cembran

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The demand for our hardy evergreens, to plant as ornamental trees, and as screens from our cutting winter winds, must soon be very great. In fact, I seriously question whether it would not be good economy for our railroad companies to plant belts of them on each side of deep cuts where trains are often detained by snow, to retain the snow, and thus keep the track clear. It would take several years to grow them large enough for complete protection, but I have no doubt, from what I have observed in my thickets of evergreens, of the entire feasibility and ultimate economy of the plan. As a shelter for stock yards, nothing can possibly surpass them.

For planting in very rich, or artificially manured soil, the Pines (white, Austrian and Scotch,) have succeeded better than any other evergreens.

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EVERGREEN TREES ON THE PRAIRIE.

By J. P. Eames.

The belief is very common—almost universal—that evergreens cannot be made to live and thrive on the prairies. People, who have some taste for rural adornment, when asked why they do not plant evergreens, will often reply, "its of no use; I have tried them till I am entirely discouraged; they will never grow on the prairies." We will give an illustration of these abortive attempts to grow evergreens. Late in October last, the writer, while passing along the street, in the town of Amboy, Illinois, noticed, among other wares exposed for sale upon the sidewalk, a large lot of evergreen trees. They were spread out so as to catch the eye of every passer in the street. The roots were entirely unprotected, exposed to the action of sun and air. People were very busy inspecting and purchasing them, at "ten cents apiece." On expressing to the vender some doubt as to the propriety of treating the trees in that manner, he informed me that those trees were taken out of the ground, in Michigan, *only last week*, and could not possibly be injured yet! Surely evergreens will *never grow* on the prairies with such usage. People who will buy them because they come at ten cents deserve to be humbugged.

But evergreens will grow—they *do grow* to perfection on these broad savannas; and they may be transplanted, from the nursey, with even *more safety* and *certainty of success* than most deciduous trees. The reason of this is, that when several times transplanted, or root pruned, they will be found to have a large mass of fibrous roots: so that, on taking up the trees, much more roo:

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THE FARMER'S GREAT WANT;

AND THE THREE THINGS NEEDED TO REALIZE IT

By J. B. Turner, Jacksonville, Illinois.

I propose in this paper to inquire what is the first great want of labor, and especially of the farmer, not forgetting that the same principles will apply throughout to the mechanic and to all the great industrial classes.

The first great pressing want of the farmer, as such, is that the EFFICIENCY of HIS LABOR should be at once DOUBLED and INDEFINITELY INCREASED by the INCREASE of his INTELLIGENCE and skill. The final end of such an augmentation of his resources and his power is not the production of better crops, better stock, a nobler race of mere animals; but better men, a nobler race of human beings; nobler sons, nobler daughters; a more exalted and truly noble family, state, church, and race of human beings. The reproach of our profession has ever been that it required incessant labor, with little profit and little thought, whereas, in the nature of things, it should require only easy labor, ample profit, and the most incessant, vigorous and profound thought. It should produce the highest race of thinkers, the most sublime and profound actors, though, perhaps, not the most accomplished talkers, on the face of the earth; for such will be found to be the original law of nature, and the final ordinance of God. And, as in the creation of the physical world, monsters and mastodons roamed and ruled amid the forming chaos, before a garden could be prepared for AGRICULTURAL MAN, so in the evolution of the ultimate results in the mental and moral world, the monstrosities of fashionable, professional and fantastic life are, necessarily, first and fullest in their development, before the angel forms, destined to keep and to till this great garden of our God, shall walk abroad in the full majes-

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Reader, did you ever ask yourself this question? "Elevate the intelligence, the power, benevolence and skill of the masses," say all these professions, "and then, in the same proportion, you will be able to dispense with all our services, in those forms, in which it is now most laborious and uncongenial for us to render them." Exactly so, say we.

2. How, then, is this great want to be met? I answer, by bringing the power of mind, of modern science and intelligence, to bear upon our great agricultural interests as fully and freely as it is brought to bear upon other great interests and pursuits of human life. When Paul said "that which is natural is first, not that which is spiritual," he utters a great profound truth, more profound and, if possible, of more universal application to the moral world than gravity is to the natural world. Taking the masses of men as they are, you cannot feed the soul with everlasting life while the body is left to an incessant struggle with everlasting death; and, even if men ought to esteem life more than meat, it is still the fact that they do not and will not. Our first step, then, as farmers, though not our only one, is to meet this great physical as well as moral want of the masses of the race. How shall this be done? I answer, mainly, 1—Through ASSOCIATION. 2—Through LEGISLATION, and 3—last, though not least, through EDUCATION.

1. Associations we have; grand, glorious and sublime. Think of it, dear reader! Think of our county fairs, our state fairs, our world's fairs, their congregated millions, the immensity of their products, the variety and perfection of their processes and arts, the increase of their moral and mental power, so great already that we can hardly fence politicians out of our show grounds, though we offer no premiums for the stock or the breed; then think that all this has come of a class of men who, a few centuries ago, were the mere serfs of the soil, bought and sold with the cattle, cut to pieces, or tortured, or hung, or burnt, at the base bidding of some bloated priest or haughty lord! Verily the world does move, though all its Galileos may be forced to swear that it does not. Associations, then, we have—right in their fundamental elements and aims. Let us thank God for the boon, and cherish and improve them as fast as we can.

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2. LEGISLATION. This we have not. Let no one begin here to

us look a few facts in the face. According to the report of the Hon. D. P. Holloway, to the house of representatives, in congress, as shown by the census of 1850, more than four-fifths of the whole population of the United States are engaged in the pursuit of agriculture. Their farms and tools were, at that time, valued at five thousand millions of dollars; and even the single item of their fences was reported as of more value than all the manufacturing capital of the Union.

But, while the government of the United States has expended millions of money for the comparatively meagre interests of commerce and manufactures, either directly or indirectly, it has not spent two hundred thousand dollars, or one-fifth of one million, all told, for the great interest of general agriculture since the origin of the government; meantime, they have expended more than this amount of money to adorn the twenty acres of ground around the capitol; more for statuary and pictures; more even for carpets for the capitol; and some five times as much for a single expedition to the Dead Sea; and, probably ten times as much for expeditions to Japan, the north pole, and the Lord knows where else. With all this, however, I find no fault. I would simply beg leave to inform them that the four-fifths of the masses of our people who till the soil, and pay the greater part of the taxes and expenses of the government, have some little interest, and some few rights, under that government, as well as the one-fifth devoted to other pursuits; and that they have quite as much interest in investigating the facts and products, and developing the resources of these United States, as they have in Japan, or the Dead Sea, or the north pole; nearly as much interest in the ONE HUNDRED AND TWENTY MILLION OF ACRES which they cultivate with their own hands, as they have in the *twenty acres* around the capitol; and some interest in the adornment and moral and mental development of their own homes and families, as well as in buying paintings and statutes and carpets for a con-

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of agricultural development in these same lines, must strike the most casual observer. I do not contend that other causes have not operated, but I do contend that the negligence, not to say criminal partiality of our representatives, is one among the causes of this unfavorable result. True, our mechanical brethren have began to do something for us—indeed they have already, though promising nothing, done much, and doubtless will do more. But congress has promised much and done nothing, not even so much as to give us, promptly and widely circulated, our meagre agricultural reports—not to arrange their matter, or fit them up even with a decent index, so that any sensible man could make a sensible use of their confessedly valuable matter, written mostly by the farmers themselves. They do, however, annually get out a few of these papers, thrown together for most part as though they had been put into press with a pitch-fork, and distributed generally some two years after they are of any use, by some political whirlwind, that ends its gyrations at the door of some party politician, or some lawyer's office; and occasionally, by special favor of some friend, a practical farmer may get at one, some months after he has read the same or similar matter in the papers. But thanks, even for this. Nor do I suppose this is the fault of the heads of this department; if congress will give them means, clerks, printers, and possibilities of compiling and classifying, and reducing to order, and indexing, and distributing such a work as it should be done, I doubt not that they would do it; if not, let them be called to account for their delinquency. As it is, just take this one single book, compiled and distributed for the benefit of the farmer, and compare its index, and digest, and method, and order, and mode of distribution, with the scores of books that are annually published and distributed pertaining to the interests of law and lawyers, and you will soon see that farmers are not in power at Washington; no, they are at home, paying taxes for books, not at Washington making them. It is said that this fostering of other interests is all "an indirect aid to the farmer;" and so it is; and so is the prosperity of the Japanese and Fejee Islanders. It is the glory of the farmer's profession, that no human being on the face of the earth can be made to

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or two at the full breast of "bona fide" direct aid. BUT WHAT CAN BE DONE? They can, in addition to making provision to promptly and efficiently arrange, digest and distribute patent office reports, gives us, first,

A BUREAU of AGRICULTURE, with its independent heads and departments. I need not stop to argue the utility of such a measure to the interests of the farmer and the country. Some such measure has been recommended and urged upon congress by almost every president and statesman, from Washington's day to our own, as may be seen from Mr. Holloway's report. The opinions of Washington, Madison, Jefferson and Jackson relative to these great agricultural interests are well known. They omitted no opportunity to press them upon congress. But congress was always too busy "making presidents" and "saving the Union," or attending to the interests of political lobby members, to give the matter any serious attention; and it has been put over, from year to year, among the "unfinished business." Now, if the farmers themselves would only once give their representatives to understand that if this business is not completed, at this session, they would be left at home themselves at the next election, among the "unfinished business" of their district, I will venture to say that the matter would soon be brought to a close, and this bureau of agriculture would not lie over for another half century with "unfinished business." Farmers, suppose you try it for once.

There are various other things that congress can do to improve the present condition of our farming interests, too numerous here to mention; for example, it can stop taxing, in the article of sugar, at enormous rates, the millions who farm one hundred and twenty millions of acres, for the benefit of a little aristocratic class of some twenty-five hundred persons, who farm less than one half of one million of acres of our soil. But I pass on to the third topic.

3. EDUCATION. On this subject congress can also do somewhat for us, though we ourselves ought to do much more. Edmund Burke said that "education was the cheap defence of nations;" and it is also equally true, that "wealth is the bone and sinew of

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farmers beyond the bare elements of the common school? How have they practically attended to this "cheap mode of national defence?" They have expended some two hundred millions for the war system, and less than one ten-thousandth part of that sum for the great interest of agriculture. They have expended five millions for military schools; about as much more for naval schools and instruction; but not a single dollar for agricultural or schools of productive art of any sort. Does this look like relying upon intelligence and virtue for defence, or upon the pike and gun? "A single man-of-war costs more than a college, and a sloop more than the best library on the continent," says one familiar both with books and with blows. But congress has done something for other classes beside the military and the naval class. It has given away nearly five million of acres of public land for the endowment of professional universities—at least the land has, to a great extent, been exclusively used for this purpose—and there is not to this day, so far as I know, a single university in the Union, so endowed, at which a practical farmer could get an education that would fit him, even decently, for his profession in life. This is the more strange, as we are by nature and profession more entirely and exclusively agricultural than any nation in the old world, while almost every country in Europe has its agricultural and industrial schools by the score, and even by the hundred, fostered by their several governments. It is said that we have more public land on hand now than could be disposed of in several hundred years at the present rate of sale. Would it not, then, be wiser for congress to donate to each state in the Union some half million acres of these public lands for the founding, in each state, of industrial universities (or better, a REAL UNIVERSITY, for all classes alike, and not a sham university for one or two classes only) than it is to retain them for the benefit of generations hundreds of years hence? To what better or more national object could the land or money be devoted, if it be true that "education is the cheap defence of nations," and wealth the "bone and sinew of war?" Would not such an appropriation tend greatly to advance the higher education, and develop the resources, and increase the wealth, of by far the largest class of our people, and indeed of all classes alike? But the lamenta-

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plainly show. On this subject of education both congress and our state governments surely can do more to foster and endow agricultural and mechanical schools than they have heretofore done.

But, meantime, what should we, as farmers, do in regard to all these great interests? I answer in brief—

1. Let us sustain our ASSOCIATIONS, our county and state fairs, mechanics' institutes, &c.; let us attend them ourselves, and take our families and products whenever we can. Let us see to it, that at each fair an address shall be given to the people by some one of our own class, and our own sympathy, on the above or some other great interest of the industrial classes; and if any politician comes near to harangue us on politics, or seeks to use our meetings in any way to gain popular favor, to himself or his party, let us "hustle him out."

2. Let us besiege our legislatures, and besiege congress, and give them no peace till they properly attend to all those interests of agriculture, which they now profess to attend to, and undertake all other enterprises which we so much need.

3. Let us, meantime, attend to our existing schools; visit them at least quarterly in person; procure the best teachers; encourage and sustain them, and not forget to pay them. Build, not simply comfortable, but NEAT and NICE common school houses, warm and well ventilated, with neatly fenced yards for play grounds. We are able to do it, and we ought to do it. Also, we ought to take constant care that all our educational processes, from A, B, C schools upward, should be made constantly more practical, and industrial, and rural, in its methods and aims, and less linguistic, grammatical and scholastic than they now are. If these things are properly attended to, a new era will dawn upon the destiny of America before our children's children take our homes and our fields from our hands.

Farmers and mechanics of Illinois!! You have a great part to play in this new drama of the ages. God has given you the land

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WIRE FENCES.

By Horace Capron, of Alden, McHenry county, Illinois.

November, 1856.

It is not in my nature, my dear Doctor, to resist so eloquent and kind an appeal as that contained in your esteemed favor of the 14th ultimo. And yet, my dear sir, I cannot well see how I am to find time to respond to all your wishes with any credit to myself or any benefit to your noble efforts.

These northern blasts warn us of the rapid approach of another, perhaps, severe winter, and the "long horns" appeal both to our feelings and our pockets, for timely and ample preparations for food and shelter. The little time we have to appropriate to any mental occupation at this period of the year, every farmer, and particularly growers of stock in these high northern latitudes, know and can appreciate full well. Suppose, Doctor, we compromise the matter, and instead of wheeling our Devonshire forces into line, for another review and inspection with those magnificent "short horns," you should let me off with an hastily penned article upon a subject of vast importance to the prairie farmer—that of *fencing?*

When one has roamed, as I have, over those boundless and woodless prairies, extending thousands of miles away to the west, and south of us, the question of almost painful interest arises, how are these vast plains to be peopled? How are they to be tamed, subdued, and brought into proper use and cultivation? *How are they to be* FENCED?

On my last visit to Alton, to attend the state fair, I must confess my surprise on seeing such a vast extent of unoccupied prairie in the very heart of our state; where the fires were sweeping with resistless fury, as I had often seen them in the wild regions in the southwest.

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favor of the "farming in common" system, and doing away with all inside inclosures, that one of the post and board fences, and many advocating hedges, I was surprised that what I considered the most feasible plan was not even alluded to, and that so little should be known, and consequently so slight an appreciation had of the real merits of the *wire fence*.

The "farming in common system" may do on compulsion, or where no other means can be obtained. Where land is dear and labor cheap, and easily commanded, as in England, the soiling system can be introduced to advantage. But in this country, where a person is mainly dependent upon his own and his family's exertions, and land of comparatively trifling value, stock raising —which I look upon as the legitimate business of a farmer in this state—cannot be pursued extensively or profitably unless he has suitable inclosures and is independent of the whims and caprices of his neighbors.

Hedging at the present moment appears to command the most attention as a means by which to fence in these prairies. In England they have been cultivated for a long period of years successfully, and frequently form a beautiful feature in the landscape. They continue to be cultivated, although on a much less extended scale. They have been found to occupy too much valuable space, require too much labor and expense to keep them in proper order. They are now confined to outside or boundary line fences, and where inside inclosures are required metalic fences are substituted. In various portions of this country they have been tried for many years, particularly in Pennsylvania and Delaware, but only with partial success, and with few exceptions they have been suffered to encumber and disfigure the land. As regards their adaptability to this particular soil and climate I am not so sanguine. The past winter has given them a shock from which I fear some may never recover. The Osage orange—which to me appears the most reliable—has shown its southern origin. Still, I hope, for the benefit of the whole west, it may yet be found to resist the rigors of our climate.

The first great object of every settler, upon one of our western prairies, is to save labor and time. Money will not command the first, or purchase the last. Hedging is a work requiring both

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never be altered or changed. Their proper place is on the boundary lines of your plantations. Now, here are the objections I have to the general introduction of hedges into this country. In the first place our lands are not entailed; they are liable to be divided and subdivided with every generation, and, in some instances, many times within one generation. There is no permanency, nor can there be in the boundary lines of our farms or fields. Hedges, to be useful and beautiful, must be permanent, and looked upon and tended with that in view. Again, our farmers are, by no means, celebrated for any great degree of taste in the arrangement of their fields and fences. More are to be seen in a day's ride through the country, in a miserably dilapidated state than in a trim and good condition. Nothing can be more unsightly than an untrimmed, neglected hedge, with here and there a vacancy filled up with weeds and rubbish. It becomes, at once, a formidable nuisance. Whilst labor is so difficult to be obtained in this country, what guarantee have we that, in the hands of our farmers generally, hedges will be found to add to the beauty or convenience of the country? Even in England, where labor is abundant and cheap, with means unlimited and a highly cultivated taste for everything that is beautiful in rural life, their hedges are frequently seen neglected—forming a nursery for weeds and a harbor for vermin. My idea is, they should not be depended upon mainly as a means for fencing these prairies, but should be used as an auxiliary, and cultivated no further than the ability of the occupant will enable him to keep in perfect order, and principally along avenues, and on the western borders of the farm, where they will be useful in protecting stock and fruit trees from our prairie winds. I cannot conceive of anything more beautiful or picturesque than would be one of our fertile prairies highly cultivated and hedged in this manner, subdivided with the invisible wire fences.

Wire fences, in this country, have been most generally condemned, and when one sees many abortive efforts at their con-

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the whole object, and renders the wire fence an useless experiment. Wire fences, to be of any value, must be built *strong, permanent* and of the *proper materials;* when so built they are the cheapest and most reliable fence that can be put up—free from danger, from fire or storm. They form a perfect barrier against the most unruly animal. They are quickly built and easily kept in repair.

Some year or more since I saw reported in the New York Tribune a conversation held at the meeting of one of the scientific societies in the city, in which the use of wire for fences was the subject of discussion. Professor Mapes and others condemned the use of it upon scientific principles—the effect of heat and cold in causing too great contraction and expansion. Some one present referred to a fence, built by myself, in 1848, (a description and diagram of which was published in the American Farmer, in the city of Baltimore, vol. 5, page 23,) to which was attached an apparatus to obviate this difficulty, and allowing for the contraction and expansion which, in theory, is a very serious objection. This was commented upon, at the time, by some of the English agricultural papers, and thought to be a great desideratum as overcoming the great objection to this kind of fence. The conclusion arrived at, however, by these scientific gentlemen, was adverse to the use of wire for fences, and so published for the benefit of our farmers.

A subsequent experience, of some eight or nine years, in the construction and use of wire fences, has taught me the way to overcome these various difficulties, and I now find them the only reliable fence against all contingencies.

Now, as to the *modus operandi.* In the first place, *you must not use wire smaller than No. 6—full.* A fence built of wire of less diameter will, sooner or later, end in disappointment—at least, such has been my case. Your wire, when practicable, should be ordered from the manufacturer, expressly for the purpose, in 125 feet lengths; which, I believe, is as long as they make it. The wire purchased in coils from the hardware merchants is generally in lengths from 6 to 60 feet, causing much extra trouble in making

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Your head posts, or posts at the extremes of the line of fence, should be of oak, and 12 inches square, framed into a suitable sill, well and substantially braced, and so planted in the ground *as to be immovable.* Your intermediate posts may be split out, if for an ordinary farm fence, or sawed, if designed to be more ornamental, and about 4 inches square. When staples are used for retaining the wires on these posts, oak should be used, to hold the staple more firmly. Boring through each post would be a very good plan, were it not for the difficulty in passing the wire through in the first construction, and the additional expense and trouble in taking down and removing a line of fence. For convenience in constructing this fence, you want sundry fixtures and tools, which a number of farmers in a neighborhood could join together and procure; or, what would be better, each farmer should have them for himself. First, you want a reel of some construction on which to place the coils of wire, otherwise, you may be very much troubled by its kinking when drawing the wire out for use. I use one made out of an iron bound beer cask, to which I have attached iron gudgeons. A common pair of blacksmith's tongs and a small vice will be found very convenient and useful in joining the wires.

On an eighty rod fence, this large wire, after it has been put into its place and drawn up by hand, will require a very considerable power to bring it up to its proper tension. This may be done with a large screw, or by a lever, as the convenience or the ingenuity of the individual may suggest. I use an old mill screw, fixed into a light wooden frame, which I place behind the permanent post, and conveniently draw the wire to any desired tension. It is important to take all the crooks and kinks out of the wire. In the absence of any better arrangement, after the wire is drawn taught in its place, a man may pass along the wire with a wooden mallet and billet of wood. I use a small apparatus, which I procured made at a machine shop, in Chicago, consisting of a piece of oak plank, about 20 inches long by 10 wide, on the side of which is bolted three grooved iron pullies, about two and one-half inches diameter. The wire, as it is drawn forward along the line of fence, passes over and under these pullies alternately and comes out

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the angle so that it shall not be drawn from its perpendicular in tightening up the wires; so, also, in passing any sudden dip in the ground, the post, at the lowest point, must be so fixed in the ground that it shall not be lifted out.

Having gotten together all our materials and tools, and had our posts all framed and sharpened and delivered upon the ground, we harness up a pair of steady horses before a farm wagon, and, with our wire and tools all in, we drive to our work.

First, the head posts are permanently set in the ground, and bored at the proper distances, to receive the wires; the distance apart of each wire being as follows: Beginning at the top wire, four feet two inches from the surface of the ground; the second wire ten inches below that; the third wire eight inches; the fourth wire five inches; and the fifth wire five inches. This carries your lower wire to within 22 inches of the ground, which answers for all farm stock excepting sheep and hogs, which, with us, are not "free commoners." Whenever it is required for a hog and sheep fence, you have only to nail on to the intermediate posts, five inches below the lowest wire, a bottom board twelve or fourteen inches wide, and turn on each side, against the fence, a good furrow, and you have a perfect farm fence.

Having placed your extreme posts, sight your line through and set up markers at suitable distances. Then drive in your intermediate posts firmly on the line, eight feet apart from centre to centre of each—taking care to keep the posts plumb, and the front side fair to receive the staples. The posts being now all ready to receive the wires, I proceed to uncoil the wire; drawing each length out straight upon the ground, and sticking the ends in to fasten there convenient for use. I then attach the first length to the hinder axle of the wagon, and drive, steadily, in the line of direction of the fence, until the end of the wire is reached, when, by signal or otherwise, the wagon is stopped, and another length connected; and so on to the extreme end of the line of fence. The wire, in its progress, passing over and under the little iron pullies, the frame of which is made stationary for the purpose, comes out perfectly straight. When the head post is reached, make the wire fast in its place, and drive back to the place of beginning; pass through the other end of the wire in its place, in

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the staples on the run. With two men, and a boy to drive the horses, I thus put up eighty rods of fence in two days, or take down and remove one of that length in same time. The whole cost, at the present price for wire, including labor and materials, is about eighty-two cents per rod.

When these heavy wire fences are erected in the fall of the year, it would, perhaps, be prudent not to draw them up too tight, as the extreme cold might cause some to break, and it is but a few moments' work to tighten them up in the spring. Last fall I erected three lines, of eighty rods each, and drew the wires sufficiently tight to answer all practical purposes, and they remain so, without having been touched since—having undergone a change of one hundred and thirty degrees of temperature.

Now, for a few good and sufficient reasons for constructing a fence upon this plan. First, by making use of this large wire, and drawing it through from one extremity of a long line of fence to the other, and suffering the wire to *render freely* the whole length, I have not found it necessary to draw it to that degree of tightness, (to make a perfectly impassable fence for all kinds of stock,) that it will break when contracted by the extreme cold. Secondly, by placing the wires the distances apart specified, and securing them in that position on the intermediate posts every eight feet, it is impossible for an animal to get his head through between the wires; and I have never known an animal to top them, although I have seen them thoroughly exposed to the most breachy and troublesome herds. A third reason is, by running your wires the whole length of your line, you can, at any time, go to either head post with your screw or lever and tighten up the whole, or mend a broken wire and retighten it in a few minutes. Fourthly, in the event of your wishing to change a line of fence, you have nothing to do but draw your staples and drop the wire upon the ground, attach a horse to one end and haul it to its place.

I am fearful I have extended this communication too much; but all the difficulties in the construction of a wire fence are made up of small matters, which can be learned only by long experience and practice in the use of them; and, Doctor, I am not willing to take the responsibility of recommending so important a

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directions are followed out. If any one chooses, as most have done, to trifle with the matter, and, in a fit of false economy, to erect a *cheaper wire fence*, he must take the consequences.

Very respectfully and truly yours,

HORACE CAPRON.

DR. J. A. KENNICOTT,
Cor. Sec'y Ill. State Ag'l Society.

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FARMERS' RAILROADS.

By L. W. Ashley, Anna, Union County, Illinois.

Foreign stockholders and borrowed capital have constructed railroads, each on a scale adequate to do the business of a state, on all our main routes of trade and travel; but still a large part of our country is not accommodated as it should be.

We now want a railroad "to every man's door," or rather from every farmer's market place, within such distance that he can take a load to market and return to his home the same day.

It is useless to expect foreign capital, or the resources of a newly opened country, to build roads, on the plan now used, at a cost of $20,000 to $50,000 per mile, in sections not able to pay the running expenses of these costly and ponderous machines.

What can be done? Shall each county, off these main lines, wanting an avenue to market, raise every dollar possible from its citizens, then pledge the county for all the bonds which it can sell, at ruinous rates of discount, issue first, second and third mortgage bonds on their road; and then, if they are, fortunately, able to complete it, have it on their hands, a perpetual tax, for operating expenses?

If a village hotel is wanted, do shrewd men build a "Planters' House?" Or is a merchant flouring mill adapted to do the custom work of a country neighborhood?

Cannot a railroad, suited to the wants of a farming community, be cheaply constructed and operated, so as to be capable of doing a small business, with profit? The writer confidently answers, it has and can be done, and he will endeavor to show it.

When the railroad contractor has a heavy job of earth-work to remove, he substitutes for the farmer's cart or wagon—not the iron horse, and its costly track, with trains once or twice each day—but plain, cheap dirt cars, costing about $30 to $50 each, on

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It is well known that the single horse power engine, in the mechanic's shop, is as efficient and manageable as the 500 or 1000 horse power engine of a steamship. The six ton locomotive works as well, in every respect, as that weighing thirty tons, except its power is proportionately less.

Some 17 years ago, Mr. Otis, inventor of the well known steam-excavator, in company with Carmichael and Fairbanks, had a contract on the Western railroad of Massachusetts, which required them to move a gravel bank, of some 300,000 tons, into an embankment of two miles in length, over a river, and across overflowed bottoms. His first move was to build a bridge over the river, of strength to carry his trains, at a cost of $200, which the railroad company afterwards replaced, by one fitted to their trains, for not less than $6,000. The track was made by placing a 2 by 8 inch plank, longitudinally, under each rail, across which ties, like common fence posts, with dove-tail notches sawed into the top side to receive the rail, were spotted down. Into these notches, track rails, of good hard 4 by 4 inch scantling, were firmly fastened by wedges driven into the notch, inside the rail. On this wooden track—not having even a nail or spike about it—two small locomotives, weighing only 3 tons, were set to work hauling trains of 15 to 20 cars, each carrying 2 tons of earth. The locomotives consisted of a simple, plain flued boiler, with a pair of cylinders, &c., set in a light but strong wooden frame, on two pairs of driving wheels. That track, fairly estimated, would cost, in a timber country, about $640 per mile—2 miles.....$1,280

Locomotives—2—at $800,.....	1,600
Cars—40—at $40 each,.....	1,600
Add a shanty, with anvil, forge, vice, files and other tools for repairs,.....	520
In all,.....	$5,000

With this simple machine—for the railroad, as a whole, is only one great time and labor saving machine—an average of 1,200 tons of earth was moved from the pit to the bank, daily, through the season. Only four men were employed—an engineman, and man-of-all-work to each train of 15 cars, carrying 30 tons—of

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Many of our railroads do not average 1,200 tons, net weight, moved daily, though capable of doing 100 times as much by increasing motive power.

Large steamers, on our rivers, need a smaller class as feeders, much as the river requires springs for supply of water, and the business of town and country would certainly better spare the first than the last. In like manner, our first class railroads should have smaller ones, as feeders, to make them business.

No greater curse than a non-paying railroad can well be entailed upon a country. Of these, knowing men have too good reasons for fearing an increase of numbers, when their at present open construction accounts, now drawn from borrowed capital, shall be closed.

Such roads as are now proposed connot conflict with existing lines, but must, if made, add vastly to their income. Therefore, they should encourage every effort in that direction.

Branches to trunk lines, constructed on the same general plan with them, have, almost without an exception, proved a general failure; for the sole reason that they cost too much, for a small business, to pay for building and operating. Similarly, the sternwheeler will make money where a large steamer could not pay her deck hands.

Some may ask, if the small railroad will answer so well, why it has not, long ago, been brought into general use? In reply, it may be said that the railroad interests of this country have been and now are managed by agents whose sole object seems to have been to occupy and control the main avenues of trade and travel. Every company, too, is ambitious to make their own the great through line. Hence such enormous and wasteful expenditures for agents and runners soliciting business, and for fast through trains, generally verifying the old adage, that "haste makes waste," most strikingly illustrated by reports and doings of leading lines between the east and west.

On our rivers, we see steamers adapted to every trade, from the half-pony power stern-wheeler to the floating palace, with its

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Many of the best counties in our good state are yet remote from market, except by wagons, over roads passable only for about half the year, and that, too, at the season when farmers should be busy with their crops.

Lumber, rock and gravel are too scarce, in the prairie region, to admit of plank or macadamized roads, except at great cost for construction and maintenance.

Capitalists now require a stock subscription from the country, equal to one-half its estimated cost, before they will extend their fostering hand. Then the same old tale of first, second, and third mortgage bonds, preferred stock, &c., is acted, till the original stockholders (after going on swimmingly for a few years, on dividends from borrowed capital) find their stock worthless on their hands. Now, let some company try the experiment of using that half in building and fully paying for a railroad of smaller capacity and cost; but which would be able to do their business with satisfaction and profit. If successful, it would be an era second only to their first introduction.

Having thus attempted to show what is wanted, it remains, only, to consider how best to accomplish the desired purpose.

At this day, to build and pay for a road from the home resources of a sparsely settled region, and have it free from debt, the capital stock, or first cost, must be low.

Graduation and masonry, both main items in preparing for track, can, on most roads, be diminished one half by increasing maximum grades and curves, within practicable limits. The line should be located on the most even ground, without the usual regard to directness, for most deviations may be made to accommodate more people, and, of course, more traffic. In fixing curves and grades, first ascertain the maximum required, on the most difficult part of the work, which may safely be assumed as high as 80 feet rise per mile, and curves of 600 to 1000 feet radius, where speed is not a paramount object. Many years' use of such on

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where the cost of roadway can thereby be reduced. By adopting what is known as the undulating system of grades—which is simply to increase and diminish the rate of ascent and descent to correspond with the ground passed over—excavations (which should be avoided when practicable) may be made few and light; and banks of more than one or two feet in height would be seldom required, except across streams or low wet grounds. Steep grades require more motive power; but, at the same time, the absence of slides and washing and wearing away of high cuts and banks, would so diminish cost of road repairs as to more than balance extra cost of engines. Bridges, culverts, and structures of that class, would have to be made only of sufficient strength to carry loaded wagons safely—the assumed weight on each pair of car wheels being only one ton. Thorough drainage would be essential, but the width of roadway, to carry the track, might be no more than ten feet on banks, with extra room for ditches in cuts.

Every practical man, acquainted with making highways, can see that the proposed line, on a moderately even route, over most parts of our state, may thus be made ready for the track at a cost not exceeding that of a good plank road, exclusive of planking. But, in a prairie region, timber is valuable and scarce, and it would be true economy to substitute an iron rail, in most cases, particularly on routes of much length or importance. For a light track, a good rail, of the usual form, weighing 45 tons per mile, spiked on to cross ties of size and quality for good fence posts—not hewed, but only spotted on the top, to give even bearing for the rail, and laid two feet apart, or 2,640 per mile, well filled in with earth, rounded on the top to throw off water—would be amply sufficient. Generally, the gauge or width of track, between the rails, should be the same as that of the road with which it connects, to allow cars of the small road to pass to and from the main line, for convenience of transhipment. Otherwise, less width would be preferable, on lines of much curvature. Freight cars, to carry one ton each, would answer; for heavier single articles, or packages, rarely are carried on public conveyances; but, in case they were, two or more cars could be coupled together, the same as is often done for carrying long timber on other roads. Such a car, by using tarpaulins, or some other similar device, to

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from time to time, be procured; but always avoid the prevalent ruinous practice of immense weight, which is now crushing the heavy iron rail as the wagon wheel does the plank—a fact proved by five minutes' examination of any such railroad. To carry passengers twenty miles per hour, an engine weighing two to three tons, on two pairs of driving wheels—without trucks—would work well, and carry 60 to 100 passengers, and can be made strong, plain and durable for $1,000. For transportation of freight, a four to six ton engine, on four pairs of driving wheels, at a cost of about $1,500, would correspond with other parts of the equipment, and haul 40 to 60 tons, net weight, besides cars. One well paid, careful, competent engineman, and one helper, could manage an engine and train while in motion. Engine-houses, shops, turn-tables, &c., for such an outfit, can be made on a scale and cost proportionally less—say one-tenth the usual cost. Private warehouses and hotels should give all necessary station accommodations—except a platform and landing shed, with wood and water. Employ only good mechanics as enginemen; and they could, during dull times, thoroughly repair their engines and cars, and thereby dispense with most or all regular shopmen. In operating such a road, the company should have the contract system fairly tried—on the plan of "by the job," instead of "by the day"—and probably extend it, eventually, to include every man employed. This road, well stocked with extra engines and cars, would be run in manner and cost to correspond with ordinary fluctuations of trade. Frequent trains, stopping whenever required, accommodate the public and *create* more business; therefore, it is of primary consequence to work to that end. Four trains per hour can safely pass over a tolerably straight road. It is clear, therefore, that what trade and travel is now done on some great railroads would not equal the capacity of such a railroad as is herein attempted to be brought to the notice of those interested.

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The subject of successfully adapting the railroad to a small traffic—for which, indeed, it was originally designed—has been long and carefully considered, and the results are now at the service of the farmer, who is the foundation of national as well as individual power and prosperity. If they can profit by these suggestions, his purpose is accomplished.

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SOUTHERN ILLINOIS.

By Belleville.

It has always been the custom among men to treat contemptuously—to distinguish, by some term of derision—that individual, that enterprise or that country which promises much and yet postpones performance. And the sneer circulates without apparent thought, on the part of the sneerers, that these very promises are simply solicitations for that external aid which is indispensably necessary to the requisite development, however rich it be in its own resources, of any good thing on earth.

It is a law of Providence that no isolate individual, no unfostered enterprise, no neglected district of country, however gifted, worthy or naturally pre-eminent each may be, can fulfil its legitimate destiny without the aid of some continuous influence from without. Southern Illinois is no exception to this law any more than Syria, or Greece, or Rome. Look at her! As gifted by nature as the land of the Nile; in geographical position as fortunate as she; possessing, equal with her, the native power to feed many people; to be "the granary of the world," and, as the years roll, to reach, in political importance and congregated intelligence, a position unsurpassed by that of any other country. She now, in the midst of her recorded promises, is indeed called after the land she so closely resembles in native richness. But it is *modern* Egypt, the derided and neglected, from whom is given her that name of scorn; not from that Egypt she yet hopes to emulate, to surpass, even—the world-thronged and world-cherished—the Egypt of ancient story. And men will continue

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much from her, provided her internal capacity is equal to her external position and facilities. And as to this capacity, she possesses a climate and soil which wonderfully admit the cultivation of both northern and southern products. The wheat, corn, oats and apple crops are universally conceded to surpass, in excellence and productiveness, those raised in any other portion of our broad country. Cotton, too, not unfrequently whitens her fields. I might particularly specifiy the wine grape; also, hemp, barley and, indeed, every species of agricultural product, save, perhaps, the sugar cane, as rewarding well the labor of the farmer. Moreover, the mineral resources of Southern Illinois are, by late explorations, proved as rich and varied as the capabilities of her soil; so that to the mechanic and manufacturer no less than the farmer and merchant, and all the professions which these invariably draw in their train; in short, to all, in every department of human exertion, she proffers most certain and rich returns for labor bestowed. But the foundations of the prosperity of a country so rich in soil and genial in climate as this section, in order to be permanent must be laid in the freedom, industry, intelligence and moral power of her FARMERS.

Herewith is opened up the subject of agricultural development, than which, in the language of another, "no temporal question more intrinsically involves the growing interests of civilization." Heretofore, as a general rule, the cultivator of the soil has been governed and oppressed by those who, by first imposing upon his ignorance the idea of their divine right to the larger share of his earnings, thereby obtained means and leisure to coerce him to a subserviency in which he may yet be found, even where the belief in divine right has exploded. And here, in these United States, although politically free, how often do we see the farmer, from habit, doubtless, yield before the rebuff of mere assumption, retire in the background and resign place and privilege to those far his inferior in native ability and true manhood.

A full system of agricultural development will not only cause

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associations; the former to develop the child, the latter to develop alike the capacity of the man and the soil. Of the latter it has been justly said, that "any one who observed Illinois ten years ago, and who has attended our late county and state fairs, cannot but realize a lively impression of the growing advancement of the agricultural interests of our state." And I would suggest, for the encouragement of those wise and intelligent farmers in our midst, who have labored so effectually, and that despite many obstructing prejudices and circumstances, in bringing these annual gatherings of the best agricultural products of the country into general favor, that, though in the decided advancement of the interests of their brother agriculturists, they find themselves already reaping the harvest of their efforts, yet they may be assured these efforts have only begun to receive their destined reward. For the present seen favorable results of these fairs are brought about through the operation of a law of nature, whereby is induced in the farmer a more just respect for himself and his vocation and an abiding stimulus to fuller exertion and higher excellence in that vocation. And this law of nature referred to is a continuously acting one, and the farther result of its operation will be an earnestly sought and rapidly acquired pre-eminence, not only in that which tends to the material prosperity of a community, but in that which renders a community rich indeed, viz: moral and intellectual worth.

Yes, Southern Illinois, so long an object of derision for her lethargy, may gather rich hope from the fact that she has now arrived at that stage of agricultural development wherein she has begun to realize those indispensable prerequisites to all that is excellent in attainment, viz: *self-respect, self-exertion and a desire for something intrinsically better.*

Let her farmers, then, upon whom rests the responsibility of determining the measure and permanency of her prosperity, guard carefully, in their midst, the growth of these indispensable prerequisites to all excellence. And, to this end it is to be hoped

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modern institutions, the fruit of the christian religion, the recognition of human brotherhood, inspire more confidence in the breast of every observing man than any and all other modern institutions whatsoever. In this section both of them, particularly our system of free schools, require much modification and improvement. I, however, suggest nothing farther, at this time, but content myself with having attempted respectfully to direct public attention to the important part those two institutions are to perform in this and all our agricultural communities, toward the realization of the worth of our boasted liberty; toward the creation, for our beloved country, of a prosperity which shall be permanent, because founded on the wisdom, intelligence and moral supremacy of the masses who till her soil, and who, therefore, are her truest, her natural protectors.

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ON SUGAR.

By George Barrell, Springfield, Illinois.

Of articles of human interest, we know few that command more attention in the line of what we consume than sugar. We emphatically live, exist, possess form, substance, vitality, by the use of human food. Therefore, let our other nature be what it may, food we must have, to be organized beings. We may live unpossessed of houses, lands, may, like the New Hollander, the lowest grade of our species yet known, find shelter in decayed trees, or under thickets, or in caves, or be arrested for our imbruted repose by the very earth itself, yet we must eat and drink, or perish. Of sugar, it may be thought that we can do without it; that it is not in the line of our necessities; but we should find on closer inspection, that the saccharine property of which it is composed is imperatively demanded in the healthy structure of the body; that there is, according to the inductions of the most celebrated chemists, a place assigned it in the animal organism that would cause suffering if it were withdrawn. That the refined tastes of modern times have required this property of sugar to be eliminated from vegetable substances, is only to say, in other words, that man possesses reason, and as he advances in the scale of being this attribute will be perpetually called upon to vary the modes of his existence.

The sugar cane was cultivated in China many centuries before it was known in Europe, to which sugar in its crystaline form was first introduced by the way of India and Arabia, in the early part of the fifteenth century. The production, which had previously spread over northern Africa as far as Nubia and Ethiopia, was extended to Sicily, Spain, Madeira, and the Canary Islands, and

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were the pioneers in a traffic which now occupies no inconsiderable portion of our northern labor. The beet root sugar came next, originating in the fertile mind of Napoleon, to make France, in those terrible wars, independent of other nations for her supplies; and it advanced in importance far beyond the maple; but the wants of the world are still unprovided—the supply is not equal to the demand, and in nothing is the ingenuity of man more interested and taxed than in the effort at obtaining sugar from the soil of the more civilized and therefore temperate portions of the northern hemisphere, embracing Europe and North America. It has become almost a *sine qua non* in political economy that sugar must be produced in other quarters of the globe than the tropics. Its production from the cane is confined almost exclusively to those regions or their borders, and is, more than any other article, fostered by slave labor. Not only is its production narrowed down to this one species of labor, but it meets that laxity and enervation, that want of application and enterprise, which is peculiar to tropical climates, be the origin of their people from whence it may. We might glance at other causes of decline in the production of sugar, and these are, the abolition of the slave trade by Great Britain, and the threat by other powers that they will follow her example in their West India possessions. Moreover, as mankind are setting themselves against this institution (we speak not sectionally but in a cosmopolitan sense) we may expect that Brazil, with the coercion of Great Britain and France, will ere long suspend the traffic in slaves, and introduce some scheme for the gradual emancipation of those within her borders.

These revolutions, if they are permitted to transpire, cannot but react for a time unfavorably upon industry. Again, the uses to which beet root have been put in France are known now, since the failure of her vintages and diseases in her vines, to be turned into the making of brandy. From causes not known to the writer, the production of sugar in Louisiana is carried on under disadvantages; the cane has degenerated, or is liable to contingencies that make our supplies from there too much a matter of chance. In the first place, the cultivation of the plant and the process of sugar making have to be bolstered up by a protective tariff, so remarkably one-sided, when the great wants of the country are considered, that we are impelled to cry out at once that the few planters

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let the remainder of our suffering country have their sugar at little cheaper terms.

However, it is from evil that good is frequently educed, and in this case we think the dearness of sugar is the cause of introducing us to vegetable substances that will grow in our northern latitudes, from which we may extract ample supplies. France has taken the initiative in this matter, always speculating and theorizing if her people do not arrive at results, which they frequently do, it is because the Saxon seizes on the practical parts; and here she presents for our consideration the new plant brought from China, called *Sorghum Saccharum*, or the more preferable name of Chinese millet, and from which sugar in quantity to compete with the West Indies, is expected to be derived. According to the testimony we have of its growth in Illinois, one thing seems probable, that it will mature well in our climate, find season more than long enough for ripening; and this we may imagine from the climate of China, which is cold, ice frequently forming in the winter at Canton, in one of the southernmost districts. That the soil of Illinois is sufficiently rich for its growth, no one can doubt. If the plant requires warmth, the dark earth of the prairies is not unlike that of the tropics, and will attract all the rays the sun ever had. If a less rich soil is required, there are portions of the state near the timber and in other parts where it may be found. As the plant is hardy, and its growth rapid, we have sanguine hopes of the success of its cultivation in our northern states.

It is only by perseverance that anything can be accomplished. What a noble resource it would form to our northern confederacy, in addition to its many other great staples, to produce sugar. Not to detract from the south or injure it, (which it is superfluous to say could not be done, so far as soil and limit of production is concerned,) but on broader grounds; to swell the amount of a substance which, in the subtle wants of improved life, has become akin to bread in the promotion of man's welfare and enjoyment. The millet has been sown in this country to a considera-

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will find out ways to convert it into sugar, or our Yankee or Teutonic origin, if you please, will be, for the first time, at fault, when it grapples with a want so dominant as the one we are considering. The cost of making the syrup will not exceed 10 to 15 cents per gallon, according to the statement of Col. Peters, of Georgia, who has made the best experiments on the manufacture of the syrup yet known in the country. He had in operation a horse power mill, with vertical iron rollers, which crushed juice sufficient for eight gallons of syrup per hour, worked by two mules, with one hand to put in the cane and a boy to drive. At the first trial of the mill seventy average canes gave twenty quarts of juice. In a good field, containing one-eigth of an acre, the yield of juice from 3,315 canes was 253 gallons; the yield of syrup from the 253 gallons was 58½ gallons; the rates per acre of syrup being 468 gallons. In a poorer field the weight of thirty selected canes was 49½ lbs.; weight of juice pressed out 25¼ lbs.; loss in crushing ¾ lb.; weight of crushed cane, dried in the sun, 9½ lbs. The juice should be placed in boilers, a certain quantity of lime be added to it in boiling to neutralize vegetable acids present, which, if not neutralized, would materially injure, if not spoil, the syrup; but most northern experimenters have neglected the use of the alkali, and definite results have failed to be secured in consequence of ignorance of the best processes to be employed. The yield of seed per acre is 25 bushels of 36 lbs. to the bushel; thus furnishing a good supply of this necessary adjunct to its cultivation. A tablespoon full of seed will plant four or five rows, a rod in length, and this will be sufficient for a first trial, and to furnish seed for another year. Upon the feeding qualities of the plant an equal degree of uncertainty prevails, but much is anticipated from it. For fodder it will need to be sown thickly in drills, and be cut several times during a season. Cattle have been seen to feed upon it, in its green state, with the greatest avidity.

We hope, with those who take an interest in this subject; with farmers, those who own land; the inquisitive, those interested in the public good—that something will be done to test the sugar

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not draw conclusions from premises that are not established. The crystalization of the sugar is the object to be attained, and to this we would draw attention. The mill, likewise, is an important element in the result.

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THE CULTIVATION OF POTATOES.

By A. L. Miller, Oakwood, Illinois.

The repeated failures that have been made in the cultivation of potatoes have caused many to become discouraged, and eagerly seek a substitute. Now, it would seem that success in the cultivation of the potato depended less on the exertion of the cultivator than any other product of the farm or garden. Those circumstances over which he has no control would seem to determine the result; and yet, if the same principles were applied to the cultivation of potatoes that are applied to wheat and other cereals, failures would be less frequent.

The soil should be adapted to the crop. New ground, the second year, and also the third, if the sod is not thoroughly pulverized, or land on which, from any cause, the sod is only partially rotted, will be found favorable to the growth of potatoes. In fact any piece of ground on which you might reasonably expect a good crop of wheat, will be good for potatoes, whether it be newly broken prairie, or timothy or clover sod, that was turned under the season before; or on land of any kind that can be called loose, but not mellow, you may plant with reasonable expectations of success, if good seed is used.

One of the principal causes of failure, is in the seed used. It is the almost universal practice to plant such as are unfit for table use, and cannot be sold. A man may practice, in that way, with the best variety that can be found, and, in three years, he will run them out. The first year he picks the small ones out to plant, he will raise some fair potatos; the second year, less; the third, the season will be very propitious if he raises any that may be called fair, from the same seed, selecting the small ones to plant each year. The quantity of seed used is an item that will affect

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taking good fair sized potatoes, and cutting them so that there will be but one or two eyes, at most, to a piece, there will be substance enough to throw out a strong and vigorous shoot. From such seed you may expect success, if planted properly.

Potatoes should be planted at least three feet apart, (if it is desirable to raise only large ones,) in rows wide enough to admit of cultivation, say three and a half feet, or better four; and in no case should there be more than one piece, with one or two eyes, put in a hill. The best mode of planting is to drop the potatoes in every fourth furrow, as the land is being plowed. They should not be dropped in the bottom of the furrow, but placed with the hand, one piece every three feet, on the edges of the furrow just turned, in such a position that they will be covered about four inches deep by the next furrow. When the piece is planted, it should be harrowed down smooth, and so left till large enough to cultivate. The manner of cultivating should depend on the season. If it is dry, they should be cultivated with the cultivator only, so as to leave the surface as level as possible; but, if the season is wet, they may be plowed, and well ridged up.

The best time for planting, for fall and winter use, is from the fifteenth of May till the first of June. The writer has practiced planting in different places on his farm, and has, by so doing, increased the chances to avoid the greatest of all troubles in potato cultivation—the potato bug. Some places being entirely overrun with them, while another, in the same field, has escaped altogether.

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PHYSICAL EDUCATION.

By E. R. Roe, M. D., Bloomington, Illinois.

Educate comes directly from the *Latin*, and means, literally, to *draw out*, to train and develop, and not merely to *teach*, as commonly understood. Physical education, therefore, means the drawing out, development and training of the various organisms which make up the man. Its importance can only be measured by the value of the man himself; for his intellectual and moral capacity are in direct ratio to the perfection of his physical system. In a certain sense, therefore, man's physical nature is the true measure of the man himself; for all his capacities are manifested solely by and as functions of his various organisms. He breathes by the lungs, moves by the muscles, sees by the eyes, and thinks by the brain. If these are imperfect or impaired, their functions, or the faculties which they manifest. are impaired also. The knowledge of the laws of physical development is, therefore, of the very first importance. This is especially true in relation to all the industrial classes in the United States; for here, more than in any other land, wealth, luxury, excess, and the violation of nature's laws are rapidly deteriorating the race.

It is an axiom among physiologists that the seed, or egg, contains, *potentially*, the future plant or animal. This does not mean that an acorn will produce an oak, or a hen's egg a chicken; but they will produce oaks and chickens of the parent species. They will even produce individuals which are, in a certain sense, developments or continuations of the parents themselves. When, therefore, a physiologist says that an egg contains, potentially, the

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proper training will develop each one up to his own individual capacity. Education, therefore, is the proper application of the laws of development in such manner as shall secure the best results in each individual; and, as no two individuals are alike, it follows that the training, to produce the best result, must be modified in accordance with the peculiarities of the individual. Still, the same physiological laws govern the whole; and though they apply equally to the physical and intellectual man, the former only will be here specially treated of.

In all actions by living beings, including thought itself, there is consumption of material, When a muscle is used, for instance, a portion of its substance is consumed. It is not annihilated, of course, any more than is a combustible by being burned; but, by the laws of vital chemistry, its composition is so changed that it is no longer muscle. Its presence in the muscular tissue even becomes injurious, and it is removed from the system as effete matter. This consumption of material requires a new supply to fill its place; and it is one of the beautiful compensations of the animal organization that the healthy consumption of any of its parts *induces* a new supply of proper material for building up the waste. The parts of the body, therefore, which are used in a proper manner, are the very parts to which new supply of material is sent to strengthen and invigorate their growth. *This is the law of exercise.* It is the clue to all proper education; for a knowledge of this law leads to the repeated use of the organs which it is desired to strengthen.

But it is a law which always works harmoniously with that of exercise, that the frequent use of an organ increases its *facility of action*, as well as its size and strength. By *seeing*, the eye learns to see; by talking, the tongue learns to talk. If a child were kept for years within the sound of words he would not learn to pronounce them unless he constantly repeated the effort to do so. His ear might distinguish them with perfect accuracy, but the tongue itself must be trained as well to enable him to speak them. So with other organs. It is not enough to *know* how to play a

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The organs of respiration are the lungs and their appendages.

The organs of motion, subject to education, are the muscles of voluntary motion.

First.—Of the Senses. The eye alone does not judge of colors. This is the function of an interior faculty. But the eye is its organ; and is just as much benefitted by exercise, or repeated action, as other organs. It is just as true that a person of a naturally nice sense of colors cannot distinguish delicate varieties in tint, without having trained the eye by habit, which is only repeated exercise, as that one of nice sense of taste requires the same training of the tongue and its appendages to make delicate discrimination in matters of taste. It is reported that the workmen in mosaic, at Rome, use forty thousand *tints* in their art—all made from a few primitive colors—and many of them indistinguishable to uneducated eyes. And it is notorious that "wine tasters" learn to distinguish the quality of their wines in a manner truly wonderful.

But the chief function of the eye is to aid us in determining *forms* and *surfaces*, from the light reflected therefrom. In this, its capacity for development is wonderful. The astronomer, the mineralogist, the navigator, the engraver, and all who have strengthened the power of the eye by "practice," have only obeyed the law of development. They *use* the faculty frequently in that action wherein they desire success—and they succeed. Action produces consumption of material in the eye; consumption induces a resupply; and facility of repetition is the result. Hence the proverb, "practice makes perfect." That is, it makes the *faculty* perfect.

By repetition, the child learns to determine the forms of letters, and even of words; for good readers seldom distinguish the *letters* of the words they read. And, by repetition, the facility, as well as the faculty, is strengthened; and thus the eye is, in a perfectly legitimate sense, educated. But frequently looking at *German* letters will not help the child to distinguish *Roman* ones; nor will a long practice in pronouncing the German language, help in the pronunciation of the English. The training, to be most successful, must be in the very thing to be learned.

The ear is subject to the same law. An unknown language

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stranger. Repeated action, in the same manner, is the education of the ear, as of other organs.

It is well enough known that the sense of smell is improved by the same means.

The sense of *touch* is, perhaps, less subject to development than other faculties, though this is not the common opinion. This widely diffused faculty does not distinguish *forms*—that is the function of an interior faculty. But its power of perceiving surfaces is, no doubt, subject to much improvement by practice. This is certainly true of the tactile nerves of the fingers and tongue, as is proven by many blind persons. Frequent repetition is the secret of their power.

But the lungs and the muscles are generally considered as the chief subjects of physical education. They will now be considered.

Second.—Of Respiration. When a combustible is burned, it has only entered into chemical combination with the oxygen of the air. Hence, without oxygen, there can be no combustion. When portions of the living organs are consumed—as they are in every possible vital action—that consumption consists, in like manner, almost solely in their combination with oxygen. They are burned up, and their places must be supplied with new material. The very act of consumption, just as in a fire, induces an increased tendency for the oxygen to rush in to supply the place of that which has entered into combination with the material consumed. The lungs and their appendages are the bellows which supply this demand; and the blood, in its circulation, both carries this supply of oxygen and removes the portions of the organs already consumed. The importance of the breathing organs and of the blood circulating organs is, therefore, suprem . All the actions of life—thought and feeling included—depend upon these. Of course they should be educated; for these, like other organs, may be developed and strengthened by exercise. How beneficent is that law which makes the very best means of improving a faculty consist in its proper use! What would be thought of the blacksmith who should surround his bellows with iron bands for the sake of improving its form? or what might be thought of them who surround the lungs—the bellows of life—with bands of buck-

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the source of all the powers which are manifested by living beings. And a man who can do a given amount of labor, either of body or mind, with a full supply of pure air, can only do half as much if half the air be impure.

Third.—Of the Muscles. The muscles are the ropes by which all the motions of the animal machine are effected; and they have the advantage of being ropes which are susceptible of education. The wonderful feats exhibited by circus riders, vaulters, tumblers, balancers and rope dancers are all performed by educated muscles; for it cannot have happened that all the men of muscle and activity have become showmen; but it only happens that the repeated efforts of these men to execute their wonderful feats have developed their muscles in size and strength, and educated them up to their fullest capacity.

They who play upon musical instruments soon learn to pay little or no attention to the motions of their fingers. These have been educated by repeated efforts, until they apparently perform their task without the mind's control. The "pen of a ready writer" has long since become a proverb; but the ready fingers have only learned to wield that pen by efforts repeated again and again. Hence, the folly of those who tell their little pupils that they may learn to write, in after years, from a few short lessons! and lead them thus to waste the valuable hours of childhood, when the little muscles are apt to learn. True, you may teach the *mind* of older persons *how* it is done; but the muscles will not obey the mind, unless they, too, have been educated.

So in all the arts and acts of life. It is repetition, *repetition* only, which enables men to perform them well. And this is the reason why there is no high road to knowledge. To educate the mind, the same ground must be gone over again and again; and the same is true of the body. You may teach a pupil algebra and mathematics, who has not mastered arithmetic; and you may teach him to use his muscles without developing his lungs. But in both cases you will make poor scholars, because in both cases you have neglected that which is fundamental.

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physical education. Not only must the particular faculties concerned be exercised, to insure excellence, but such is the mutual dependence of all the living organisms upon each other, that their harmonious exercise and developments can alone insure a high degree of excellence. Of what avail can it be to teach a young woman the art of vocal music whose lungs are at the same time cased in whalebone? And yet it is almost equal folly to keep the brain of a young man at labor over the subtleties of the schools, without abundance of fresh air and bodily exercise. The lungs are essential to *thought* as to vocal music; for without the life-giving oxygen supplied by the circulating blood, which can only be obtained in the lungs, the brain can no more act with healthy vigor than other organs of the body. And this is true of all actions of the senses, the nerves, the limbs (including the fingers and the tongue,) and their special muscles, and of the lungs themselves.

The elements of physical education may, therefore, in accordance with the foregoing, be stated thus:

Fresh and pure air,

Wholesome food and water,

Regular and healthy exercise of *all* the faculties, and

The *repeated* use of the special faculty to be educated, in *the very acts* in which it is desired to excel.

These, and nothing else—and always in proportion to the capacity of the individual—will insure success.

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MATTER AND MIND.

Configuration is language. The form of a thing tells the history of its inner being. From a fossil scale Agassiz sketches a portrait of the fish that wore it a million and more years ago. From a petrified bone, no bigger than your thumb, Cuvier paints the picture of a mammoth, and then portrays its character. Thus, out of a joint or a scale, the interpreting genius constructs specific anatomies, physiologies and the ethnology of animals. Forms are signs; but we interpret according as we have learned or mislearned their significance. Read or wrest them we all will; for to something within us are they all addressed.

We are all full of unconscious experiences. It is these that mostly give shape to our conclusions, especially those called intuitive. According to these experiences is the significance of each and every object to us. I have a friend who always imputes to a certain construction of feature, (that to me stands for only selfishness that can "smile and smile, and be a villian still,") the best qualities of benevolence, affection and trustworthiness. How to account for this?

When I was a boy, just out of swaddlings, celebrating the "glorious fourth" with the sawed breech of an old musket, duly mounted on a block of wood, (it couldn't abide wheels, but incontinently kicked itself free from all such incumbrance,) I remember my father had a friend visiting him who observed that our ammunition was exhausted in advance of our enthusiasm. The "appropriations" by the "seat of government" had already been too bounteous to allow of application in that quarter for fresh supplies. Suspension of hostilities seemed the only alternative, when the abovementioned friend, seeing our distress, and, in the goodness of his heart, glad of occasion to make others happy, met

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good, generous, friendly-hearted man or woman whose face did not bear some feature of resemblance to the replenisher of our juvenile powder magazine. My friend's error in imparting similar good qualities to a contrary or dissimilar physiognomy I ascribe (for he cannot tell why he does it) to a similar earlier impression made by an act of simulated kindness from some crafty motive. Like most translators of form, he has mistaken the assumed for the natural and genuine—the mask for the true face. He had mislearned the alphabet of the language of form. The fault was not in the scripture but in the interpretation. In this, as in much else, we are guided less by what we *know* than by our unwonted experiences. In early life certain persons affect us agreeably and others disagreeably. We forget the facts and the faces, but their impressions are indelible, and our future judgment goes by them. Without our knowing it these features have become, for all time, types of character to us. Hence, our prepossessions or affinities, and sudden antipathies; and these would be just always if we never misread the handwriting of the Almighty. There must be good eyes as well as plain inscription. The misinterpretation of feature is an illustration of but one mode of misapprehending the significance of forms.

Matter is the speech of spirit. We speak of material and spiritual forces; but matter is negative, passive, impotent. Spirit alone has power. Spirit is omnipotent. If spirit let go its hold the matter which seems so real to us vanishes, and only invisible gases remain, and, because invisible and impalpable, called *nothing;* but in reality more *something* than when it stood so hard and tough before us. What is harder than the diamond? Yet the most subtle, impalpable and the most inappreciable of all things strikes it into invisibility—into, as we say, *nothingness*—in a flash and only "thin air," that makes way for gossamer remains. What a strange spectacle, or rather what an annihilation of all spectacle, were the total suspension of the force of "cohesion."

Spirit is all; and out of air-floating atoms it weaves itself tents to abide in, robes to walk about in, and manifold instruments

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for there are no ungainly excrescences; and for the same reason has nothing to hinder her action.

The force that makes forms lies within the form, and clothes upon itself. The force that changes form is not on the outside. It must penetrate to its inner being, and become a part of that. You cannot cobble an overworn body after the manner of mending an old shoe. There is no tailor's shop for the human constitution when it is out at elbows. You *can* patch a cancerous nose with skin from the cheek, but it is the same kind of skin still, with its freckles and blotches, without *internal* physic.

The only cosmetic for a bad complexion is a mending of morals, and the surest cure for sore eyes is sleeping well at home o' nights. Dissipation and dyspepsia are convertible terms. Bull's Sarsaparilla may check the colic, but it is not a solvent of pigs' feet and brandy. Physic does not supplant disease; but to abandon the wickedness of bad living—that is your only remedy. Do this and the nerves and brain will weave the net work of your stomach over again, if the warp itself be not too much tattered and torn. Then the undertaker is your only medicine man. What is left of your stomach (the essential of *your* life and manhood) he will stow away—not to digest, but to be digested—and turn to account some way; for when it cannot serve as a stomach it will answer very well to hire one with, though it be no other than a worm's, for worms have their uses, and nature helps them to the daintiest of dishes. Nature is never idle, and has nothing to spare, though everywhere enough. Nor will she work you over so long as any good can be had of you as you are. She prescribes but one kind of physic; we make faces at that, and betake to an infinity of doses, and "get no better very fast."

To mend a man, a body or a world, one must begin at their spiritual centre. Tinkering at the outside is worse than useless —it is dangerous. To do any thing well we need not consult the oracle of modern science so much as the old, unmodified decree of the Creator. The principles of physical education are written in your flesh better than any book. You read there that mind presides over matter—or that as the mind is so is the body—in a deeper sense than we are wont to think. "Eggs are eggs," but

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visible, mysterious *force*, that slept in the centre of an unhatched egg. Add the expanding influence of heat till the atoms have room enough to move in, and how soon are they marshaled to their places! If you could transfer the germ of one to the yolk of the other, what a different result! But if the inner principle be the same the nest of a rock mountain eagle or the sands of the Nile can make no difference. A duck is a duck, though any hen hatch it. Undoubtedly, because a duck laid the foundation or the egg, which is about the same thing. No analysis can foretell this. Only the analysis of incubation reveals it. Only the veteran oak reveals the possibilities of an acorn. What, then, has our major proposition tripped so soon? But the egg and the acorn are not the thing *being* nor the form of the being, no more than the potato is the eye or the sprout. They are the growth—material—of their monadic centres. From so many eggs we have birds, crocodiles and turtles; but the substance of the egg, the germ out, has so little to do in the matter, I think so many potatoes would answer quite as well could we get a goose or crocodile to lay them. Must a saint have less flesh than another man? The *quality* may vary, still the power and proneness of it will depend less on what is digested in the stomach than what is digested in the brain, for, as a man thinketh, so is he. That is, what he is outwardly is as his central force. Not he himself but his soul—that is he.

Action is only a mode of expression. It is *one* way in which a man proclaims the quality of his central force, and tells the world what he is. His action and power of action are modified, hindered or promoted, educated or developed, through his mind. The strength of the muscle lies more in the will than in the fibre, or at least the fibre soon grows to it, which the will will not do. Stout muscles are products of long continued will. If longing can change the color of the eye, heaving, or trying to heave, surely can change the strength of an arm. The purpose to try, and the good that comes of it, that is wherein education can help us, if we need any help, and, considering the pass we have come to, who of us does not?

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We talk of physical education as a branch; but it is a branch

universe and a life time, and at that has crowded halls of unpromising pupils, and graduates her quota of dunces. Still, *her aim* is to educate—develop—a man, and would oftener succeed were she more let alone in the matter. When one ventures to take the work out of her hands, he assumes not a little. To know the machinery of a man's being—what he wants and where he is wanted—what he is good for and what is good for him—and to fix him up and set him running, with due reference to all that—is it a task for an "$8 per month" schoolmaster? Does not that imply something more than to "read, write and cipher," or proficiency in the catechism? You will not send you old "bull's eye," for repairs, to a kettle tinker, nor your cattle afield with an unpracticed herdsman. But you appoint committees to select shepherds for your little flocks of human cattle, and applaud them most when they discharge their function with the least strain on the town exchequer. There is nothing so good as the best, and nothing so dear as the cheapest. There is no function higher than that of the teacher. He knows this who is fit to be one. He can have neither too much head, nor heart, nor anything superfluous in experience. He knows his work—that it costs sweat and blood—and rates himself above your lucre. He labors for the love of humanity, and eats bread only to gain strength to do his duty and complete his task. He is not long in getting found out, and is soon allowed to go to work at his own figure, which turns out to be a scanty living for his ribs and a shabby covering for his back, and he is infinitely better rewarded than we think. You cannot buy him off for "dollars a month," nor find his fellow behind every school commissioner's certificate.

Teachers are few—pedagogues as plenty as blackberries. To these of every grade of ignorance and stupidity, the physical comfort and health, the mental culture and moral well-being of the youth are entrusted. There is no school room but involves a knowledge of anatomy, physiology, chemistry, hygiene, moral and intellectual science. The construction of a pupil's bench implies proficiency in the mechanism of the backbone, and the philoso-

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of a substructure sort. But without the philosophy of temperaments what can he do either with the mind or body? The wants of his patients are as varied as their physiognomies. In their differing visages can he see nothing but different degrees of intelligence? Does he not know the relation of the sun and pure air to blue eyes and red hair?—of a quick spirit and a fine skin?—of hard muscles and hard work? If he cannot read the symptoms, how shall he prescribe the treatment? Or has he some educational elixir with which he may dose all alike? But what is one man's meat is another man's poison. This is as true of the mind—so far, at least, as methods are concerned—as of the body. Discipline that develops one will crush another. Often the best racer falls behind from the disadvantages of his course. That one pupil progresses under one plan of discipline is no proof that it is fit for all more than that all races of men can subsist on walrus blubber because an Esquimaux Indian grows fat on it. When the educational bill of fare becomes a scanty routine of empty plates, it falls out that any real truly starving fellow may pick out of the highway of self-tutelage more substantial pottage than is commonly served at any of the college boards. Take any one out of the warping process, and by the force of natural gravitation he soon finds his proper level. By mere collision and abrasion men get rubbed into cohesive relations and adjust themselves to the fittest place, or, if not the fittest, nearer to that than when divorced from the bed and board of nature and wedded to a fashionable seminary, where all native grace, native feeling, thought and natural form are made to give way to artificial systems of mental and physical stuffing, padding, paste and whalebone. The spirit is no less crimped, cramped and confined than the body. Not to set the soul free with enlarged views and sharpened vision is the aim, but to wont it to the wearing of the approved manacles with the least uncomfortable clanking. With many, too, it is the solemn (solemn enough) conviction that this is the best account a man can be turned to. And this paring off and condensing process we call education. And it is thought, also, that a knowledge of the *books* used is the teacher's qualification. But the teacher in the school

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of these latter are twice his prattle—in his first and second childhood—so greedily he devoured first instructions. These are the first to lead or mislead—teachers or guides in the highest or fatalest sense, and at the only critical time.

Had we not wandered we should not need leading back. Were there no disease there would be no need of physic or science of medicine. To keep well is better than to get well. If parents are not physiologists they must atone for it bitterly. Have no time to do this? They have no time to do anything else—till this be done.

The professional teacher—the schoolmaster—stands *in loco parentis*, and must be not only as wise, but wiser. He must have *wisdom* which is not knowledge—without which his knowledge is only torch-bearer of his own impotence and folly.

With all wisdom and all knowledge a teacher cannot educate his ward—at best can but teach him how to educate himself. To wind him up to running order for that work, implies some conception of his mental and physical gearing, what wheels are true and what are eccentric, what screws are loose, gudgeons broke, and what pressure he can bear to the square inch. That is, he must be a proficient in the most abstruse and intricate of all sciences, to-wit—the science of human nature. And herein, partly for his own end, he must be a prophet also, that he may

> "Prophesy,
> With a near aim, of the main chance of things
> As yet not come to life; which in their seeds
> And weak beginnings lie untreasured."

In the present boy he has the stuff whereof the future man is made. Knowing this, and seeing the plasticity of the elements, he can predict his destiny, nay, help destiny to do her work handsomely.

It is of more moment what the teacher is than what he teaches. His students study him more than his books. All copy his provincialisms, while not one out of ten master his rules of grammar. Here, as elsewhere, example goes further than precept. A friend once said to me, that he had had many schoolmasters, but never but one instructor. With him he had a term of three months, and learned but one lesson.

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amazing how long one may go about with his eyes open before he begins to see. "Their sense is shut." He who removes the "scale" and dispels the illusions of "refraction"—he is your teacher.

Everything is educative, excepting, perhaps, a goodly proportion of "schoolmasters," who cannot help to forward nature, nor are willing to let her alone. They forget or never knew that good and evil are modes and not entities—not things but directions.

> "It is excellent
> To have a giant's strength; but it is tyrannous
> To *use* it like a giant."

The blows that batter men's faces are things for vulgar admiration; but the same vigor devoted to an anvil or a woodpile might win universal plaudits. Not the annihilation of human impulses and propensities, but the direction of them, is the teacher's—guider's—duty and task. The discharge of such a function demands something more than "proficiency in protuberances." There is much melody—excellent voice—in this little organ entrusted to his charge, and he must know "all its stops" and "every touch" of the many stringed instrument ere he can make it "discourse most eloquent music."

An approximation to this is all that the best may hope for; but each, the poorest, might be honest enough, when he is at a stand what to do, to stand still and do nothing, and so leave nature to herself, who, at last, though by hard routs, will vindicate her rights and save her own. Some will not come to right issues by wise choice, but only fly to the path of duty to escape the thorns strewn in the highways of sin. With them the beauty of virtue can only be learned by experience with the ugliness of vice. But experience is a hard schoolmaster, and "takes high tuition fees."

The architect of humanity has no blunders to amend or atone for; no part of the structure needs to be razed. But let all its apartments be clear swept of rubbish, and its window-panes scoured, that great largess of unprohibited, unrefracted light may enter.

Whatever our opinions as to the exalted nature, dignity and spirituality of mind—whatever honorable distinction it enjoys over

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best comfort and accommodation of the indwelling spirit, and how the Arial-like messengers of the soul shall go out and come in with most directness and least interruption—taking in faithfully what will be most wholesome for the home establishment, and carrying out salutary influences and goodly gifts to the neighboring tenants of similar mansions. It is a matter of gratulation, that, as they are, the appointments and furniture of these mansions are not altogether adjusted by the finger of a fixed and inexorable destiny—that we, ourselves, have a voice in it, and may elect to clutter it up with rubbish, rickety and disjointed things—befoul its life, strew with mire and dirt and overload it with grossness, or cleanse, purify and strengthen it, and set it in highest order, that the "monarch of the realm" may have "a stall his glory well befitting." To know how to do all this is not within the gift of school commissioners. It is another proclamation of the teacher's difficulty and importance. He is to be a complete man, knowing sundry things, not what supplies the soul only, but what is meat for the body, also—and that rum and tobacco are food for no man—a teacher, a preceptor of youth and men, with a bottle in his hand and a pipe in his mouth—as if this were one of the God-ordained uses of the mouth and the nose—preaching the blessings and doctrines of health, and setting the most pernicious examples of the violation of them! But alas, "certain vices are necessary"—to prop certain other vices; that is all. It may be reiterated, the guardian's precepts are never so soon adopted as his practices. So true a proposition bears hard on the qualifications of pedagogues. Any slattern might teach a child its letters; but, sadly enough, the slattern and the alphabet will be compounded into one in the brain of the child. Manners go faster than principles, and words are not as impressive as deeds.

Before heaven the will to do is all—that the Abrahams and Isaacs are ready. To material sense the proof of the will lies in the execution. Bone, muscle and nerve are media—"writing media"—that record, in deeds, the volitions of the soul on stone,

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taught when the relative merits of skull-splitting and rail-splitting, after eighteen hundred and more years of theory and experience, is still, for the mass of mankind, an unsolved problem? So much has education, as it is called—books, preaching and teaching—done for the mass of man, that a cock's feather is a badge of glory, and a sledge hammer a mark of low life and menial calling. However, the problem is approaching its solution, for all. The past awaits interpretation and a teacher to inculcate its instructions truly. A considerable help to the educational system (supposed to be perfected several hundred years ago) is to be derived from this source. A glance at its "theory and practice" suggests many things to him who sets up to be the teacher or guider of men. Above all, it continually thrusts upon him the question—without answer to which he cannot budge an inch—*what is man?* and to what end is he what he is? The main stimulus presented to the learning mind is wealth and popular fame—the trophies of worldly success. To this end is the intellect whetted, and every other quality blunted that might turn the keenness of its edge. To be sharp rather than straight seems the study and the inculcation. Cuteness excites envy, but "Honesty is a fool, and Trust, his sworn brother, a very simple gentleman." The boy that can drive a good trade with his brother gives better promise than one that throws a dime to a beggar and divides his dinner at school. Arithmetic is the key to thrift, and geography an extensive scheme of "real estate." Literature is a thing of trade, and science prostitutes herself for bread. Anything, to stand the test of the modern touchstone, must "pay." Is it to this end that man is what he is? Wherever we start, we come at last to this: man is, in part, made from the dust of the earth; which aforesaid dust, in the metaphysical jargon, is matter; which matter, in its manifold forms and motions, is a means of mental manifestations. The aggregate of matter—the universe and its motions—are the manifestations of the infinite mind. The human body is a manifestation of the infinite and the finite. To set this body in the right place, facing the right way, and then to remove all barriers to the freedom of its motions—giving it the longest and truest scope of action—is not this the education and final consummation of a man?—developing all proportionally—not suffering the head to overbear the body, nor the body the head—that they may live to-

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of our experiment, that they are good for nothing, to the owner, apart?

Every stout pair of arms will somewhere find a head to direct their uses. Is it not better that the directing head be found on their own shoulders? For what other can take an equal interest in them, or tell so well when they are tired, and ache? And then, again, what can be more convenient to a well contriving head and a brave, designing heart, than two strong hands to execute their purposes? For who can serve a man so well as himself? And if he be well served himself, has not the world her best share of him? Their interests are identical, and furthered or hindered by the same conjunction of forces. The good a man does cannot be separated from his neighbor, and the wrong he does his fellow is mainly to himself. Education, then, is a sort of bond of union between the head and heels, with the heart between them, or, at least, lays bare the danger of divorcing them. That is, intellect and health—physical robustness and vigor—must be poised on the point of love, the essence of moral law and conscience, on which it may turn, like an endless joint, in a thousand different places, and never swerves from its true centre. From college halls we will take some books, and add some tools. We will teach less theology and more christianity—less sectarianism and more practical virtue, right, and honor, and truth—the foundation and centre of all these—the dependence of well-being and well-doing—and reveal the mysteries of that philosophy which proves that it is better to be honest than learned—benevolent than rich. Let it be hinted, also, that we go about in places and times where and when success is more inglorious than defeat—which is the only victory. As the Tuscans say, "the foremost in badness is foremost, also, in such honor as is going." "When scoundrels go in procession, the devil carries the cross." When we have made honor more honorable than knowledge, we shall soon instruct that right is more right than the "expediency" that has supplanted it, and more wise, withal.

What is good for the individual is the best for the mass. What

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the humor of amusement in him. Play has educated more men than books, and the old grimalkin is expert from the sports of her kittenhood. From "fetching mad bounds" in the wildest of glee are the courser's limbs clothed with strength and "his neck with thunder." Play is our first schoolmaster, and happy is he who enjoys his tutelage the longest. From the spade to the book, from the book to the ball, is the natural round. An hour's hearty sport will grow more muscle than a day's drudgery. There is spirit in it—co-operation of mind and body—and the help of emulation, also—the mainspring of all execution. "Man cares not to be great but for his fellow man." He works and plays more for others than himself. "It costs more to clothe our neighbors' eyes than our own backs." No man will forsake *terra firma* to spin round his own axis of motion the second time, for his own amusement; but give him spectators, and he will turn you ninety-nine back summersaults, off-hand, and break his neck trying the hundredth. But he never could have turned the ninetieth if his twentieth had not once been an impossibility—to him. Not by doing so much, but by doing a little more, is advance made—growth secured. There is infinite stimulus in clapping hands and applauding lungs. We are mainly indebted to others for the opinion we hold of ourselves. This is not a truth to be proud of, and there is some ground to hope that there is, here and there, a man that it is not the truth of—one who goes to his duty for its own sake, and to whom the "most sweet voices" of his fellow men are as tinkling cymbals to the deep-toned utterances of eternal right and justice. When the poet says, "man cares not to be great but for his fellow men," he speaks of him, also, as he is, not as he ought to be.

Ladders and vaulting horses are better parts of colleges than retorts and crucibles. It is little profit to a man to fill his head with books and his lungs with tubercles at the same time. What use to carry in his single skull a digest of universal lore if he cannot dig out his dinner? Vice is a [illegible]

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of whatever growth, who is driven from public recreation and pleasure, seeks it in secret, and, under the cover of darkness, is not over nice of his limits. Habit and use, with blunted pride and sensibility, convert his private indulgences into open practices, and soon his undisguised example throws the weight of what influence he has into the scale of common vice. Bad habits and worse example are strong barriers to pious instruction. By over zeal, the avowed friends of the good cause are become its foes. Could they realize their haste, they would sit down.

It is everywhere too plain that the uses of the body are underrated, denied or overlooked; that the relative worth of brain and muscle is unduly estimated. The heavier the head the stouter the swimming to keep it above water. By itself, brute force is the lowest of all things; but mind needs machinery, and the very "skeleton is a system of levers." Muscles "rig a purchase" and pry. The soul, scorning the Archimedean perplexity, goes beyond, supplies the fulcrum, and so, together, the world is moved. Finding that the spirit cannot walk alone without it, we must come back a little from our contempt of the flesh. The true principles and full import of physical education, whatever the ultimate aim of the pupil, must no longer be ignored by our "institutions of learning." Or, if the time-honored folly must be persisted in, new schools must be established, on the right basis—suited to the man and the time—universities, indeed, adapted to the universality of man's aims and aptitudes. That term of teaching that custom denominates education, can do no more, at best—and that is much—than to *start* one on his career—start him right or wrong. If wrong, leading through a life of blunders, down to his final rest, an experienced old dolt—if it does not prematurely cut him off a young one. If rightly started, and there be teachabilities in him, the educational process goes continually on, bringing him to his "eternal mansion," a wise old man, who leaves the world better for his having been in it.

There lies, in every man, the power to distinguish himself worthily, if to himself he will be true. He is full of forces—a peripatetic powder magazine. He may be let off in fit, regular

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got out all that was to be had out of him—she has not failed, nor has he, and their united tasks are completed together. With all appliances, and the best of medication, all shall not realize educational salvation. But we have this comfort—what lies beyond the power of man to mend is, though he see it not, already whole.

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HISTORICAL RESEARCHES UPON THE CULTIVATED GRAIN FRUITS IN THE STATE OF ILLINOIS.

By Frederick Brendel, M. D.

Facts are decisive in science. The more free from prejudices we make use of facts in scientific investigations, the sooner will disappear those obsolete opinions founded on hypothesis and mere credit. As it was said that all mankind had descended from one paradisiacal couple—spread from a single point of the earth—so the whole creation, animal and vegetive, was supposed to have been propagated from one common centre. It was a horror to think that different conditions, distributed all over the earth, should effect different products genuine to particular localities. Radical inquiries at the head of those of A. DeCandolle, the celebrated author of the "Botanical Geography," from whom we take most of our statements, have cleared the way for a free view into this matter.

Of all our vegetable products the bread-fruits are the most important. The native country of those which are cultivated in the state of Illinois, and their geographical distribution to ascertain, is the aim of the following treatise.

ZEA MAIS, L. Maize, or Indian Corn.

"No one contests the American origin of the maize," are the words of A. P. DeCandolle, quoted by Lyell, in his "Principles of Geology," ch. xxxvii, with no dissenting remark. But Bonafous, the author of the most important treatise on maize, Histoire Naturelle, Agricole et Economique du Mais, Paris et Turin, 1836, attributes to the same an eastern home. In confuting this assertion, we follow A. DeCandolle, Geographie Botanique, Paris, 1855, page 943. Crusaders are said to have brought, in 1204,

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Bonafous, which is in use for the maize in this age. Delile (Flore d'Egypte) remarks that the Sorgho, or Millet of India—Holcus Sorghum, L.—the same plant which is sometimes planted by farmers as a curiosity, under the name Egyptian corn or Mummy corn, cultivated in the orient of old, has grains "de colore aureo et partim albo." Cardan, in the 16th century, says that the wheat cultivated in America, called maize, resembles in habit the plant called in Italy Milica or Sorghum. Georges de Turre, 1685, says that "the maize, or Turkish wheat," *imported since a few years in Italy*, has a stalk resembling that of the Meliga or Sorghum. In the Italian language the words Melega, Melica, Melliga, Miglio Indiano, Panico Indiano, mean Holcus Sorghum, L. In the Piedmontese dialect only the term Meliga is in use for both Zea and Holcus, the latter distinguished by the term Melia rossa, or Melia de ramasse. (Red corn or brown corn.) Otherwise, the Maize is called Grano turco, Sorgo turco, Formentone, Granone, Grano Siciliana, Grano d' India, etc. After all, that grain brought by the crusaders proves to have been an unknown variety of Sorghum. Perhaps it was our broom corn, (Sorghum saccharatum, Pers.) whose undoubted native home is East India and Arabia.

The name Turkish wheat, which is given to the maize in most of the European languages, proves as little an oriental origin as the English name turkey, given to the well known American bird. The Turks call it Egyptian wheat; the Egyptians Dourah of Syria.

Such specific names are, in many cases, either inappropriate—for instance in Asclepias Syriaca, L., a name which is now obsolete, as given to an American plant, and changed into Asclepias Cornuti, or, when local, denote only the country wherefrom the plant immediately was introduced, no matter whether it is the native country or not.

Popular names, however important to the investigator on botanical geography, lead to wrong conclusions in many cases.

No author who traveled in Asia or Africa before the discovery of America—no Hebrew, no Greek, no Roman writers—make mention of a grain fruit which could be deemed to be the maize. The Zea of the Greeks, which name is now adopted as the generic

and other products of that country which are represented on many monuments, and found in every sarcophagus. A single case is known that a traveler, Mr. Rifaud, found the grains of the maize in a sarcophagus. DeCandolle doubts not at all the veracity of that gentleman, but suspects him to have been the victim of some humbug of his Arabic guides.

On the other side, the maize is represented on many ancient South American works of art; has been found in the oldest catacombs, and is proved to have been cultivated by the ancient Peruvian and Mexican nations. Garcilaso de la Vega, (Commentarios Reales de los Incas.) and other early Peruvian writers, describe the luxury of the artificial golden gardens, (huertas de oro,) mentioning the maize plant and the maize spikes (mazorcas) as made particularly exact, which proves that the maize has been considered. by the ancient Peruvians, as an important bread crop at a time when, in the old world, the plant was unknown. And, indeed, it was found by the Spaniards in a state of cultivation on the island of Cuba, at the time of its discovery.

The ancient Mexicans (like as the old Greeks had their Demeter—the Romans their Ceres) had a goddess named Cinteute, who derived her name from that of the maize, "Cintli," and received the first offerings of the maize harvest. The name maize is derived from the Haytian word mahiz.

Bernal Diaz, the author of the Conquest of Mexico, says: "The country produces maize, red pepper and many other things."

The maize is not named among the five alimentary species introduced into China 2822 before the Christian era, but was introduced first in the 17th century. In East India, says Roxburgh, in his Flora Indica, it is cultivated only as an object of luxury; nowhere as an alimentary fruit.

Moreover, the different species of Zea are all American. Steudel, in Synopsis Plantarum Glumacearum, numbers seven species*; but he remarks: "Forsan omnes species varietates unius

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ejusdemque speciei, culturæ proles." (Perhaps all varieties of one species produced by culture.) And, indeed, it seems that no undoubted wild growing specimen of our cultivated plant has been found. DeCandolle (Bot. Geogr., page 951) says: A. de St. Hilaire meant to recognize the wild plant in Zea Mays tunicata, whose grains are entirely covered with elongated and acute glumes, as to be seen in a figure in Rep. of Com. of Pat., 1853, page 98. A young Guarany Indian told him that this plant was growing in the moist forests of Paraguay.

The common maize being the sole grass whose grains are naked, St. Hilaire presumes that the above form is the primitive one of the species.

Bonafous takes it for a different species, and calls it Zea Cryptosperma. He received the grains from Buenos Ayres, under the name of Pinsingallo, with the note that cultivation does not alter the character of the spike.

Ten years after the publication of Bonafous, Dr. Lindley gives a figure and description of the same maize, the grains of which had been sent, by Mr. Floy, of New York, to the horticultural society of London. Mr. Floy said he received them from the Rocky Mountains, and was assured that, after a cultivation of two or three years, the spike loses the glumes, and takes the character of common maize.

If this statement is true, the cultivated grain, planted in moist openings, must alter, after some time, producing the primitive form of the plant. And now there is left the question: Which is the primitive home of the wild plant—South America or North America—or both of them? In South America the cultivated plant was certainly, in very early times, spread over the continent, and perhaps naturalized in the north.

The cultivation of maize, at the present time, in the old world, extends from the Azores over the southern part of Europe; the most northward point being the 50 deg. north latitude, at Frankfort on the Main. In a small degree it is cultivated in Asia Minor, Egypt, the East Indies and China; more in the Indian Archipelago, where, after the discovery of America, the Portu-

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rieties of maize. The Agricultural Report of patent office, 1853, numbers twenty varieties cultivated in the United States.

After Heller, (Reisen in Mexico, 1845–48,) the most known cultivated varieties in Mexico are: 1, Maiz de padus, with small, eight rowed spikes; 2, Maiz Manchado or Chinesco, a rich kind, with white, yellow and red, and sometimes blue grains; 3, Maiz Blanco, which furnishes a fine, sweet flour; 4, Maiz Amarillo a., grueso, the most cultivated, with two to three spikes of 300 to 600 grains, b., bequeno, smaller but heavier; 5, Maiz Cuarentano, or Olote Colorado, which ripens very soon and grows in the coldest districts; 6, Maiz Tardio, or de Riego, the most productive variety around the city of Mexico on moist land. The popular name of the maize amongst the Mexican Indians is Tlaolli.

The North American Indians cultivated the corn before the colonization of the states. By colonists it was first planted in Virginia, 1608; in Massachusetts, 1621.

One variety, the early Mandan corn, (Zea Mays, b., Praecox, with a very short culm, spathes arising from the base of the culm, seeds mostly in eight rows, Nutt., Gen. II., 203,) is successfully cultivated by the natives on the Upper Missouri, as high up as its sources, ripening in a climate where no other variety could exist.

TRITICUM VULGARE, L. Wheat.

Wheat is, next to Indian corn, the most important grain crop in the state of Illinois. Out of about twenty cultivated species of the genus Triticum, generally one is cultivated in this country, Triticum Vulgare, L., with two varieties—the summer wheat and the winter wheat. Both varieties were known to the ancient Romans. Wheat was cultivated by the Greeks, the Egyptians and the Hebrews. It was one of the five bread fruits introduced into China, 2822 years before the Christian era, by the Emperor Chinnong, and (at least the summer wheat) has a Sanscrit name. Indeed, as far back as we go in the history of the human race, we meet this nourishment of man, whose probable home is to be sought between the mountains of Central Asia and the Mediterranean sea.

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Sea) the wheat grows spontaneously. In another passage he says the same of the northern part of India, (in Musicani regione.)

Several modern travelers assert that they have found the wheat in a wild state in Western Asia. Olivier, traveling on the right bank of the Euphrates, in a country unfit for cultivation, says: "We found in a ravine the wheat, the barley and the spelt, which we had seen already in Mesopotamia." Balansa found the wheat on the Mount Sipylos, in Asia Minor, east of Smyrna, in a location where it certainly grows spontaneously.

The great variety of names in use for the wheat, in the ancient and modern languages of Europe and Asia, indicate an extensive primitive home of this plant; and, although neither in Palestine nor in Northern India has it been found in a wild state, it is very probable that its primitive habitation occupied the whole tract between the Himalaya and the Mediterranean Sea. At present the culture of wheat is spread over Middle and Southern Europe, Western Asia and North Africa, China and North America to 50 deg. north latitude. In the southern hemisphere it is cultivated in Chili and the La Plata states—Capiand and N. S. Wales, in Australia. More extensive details are to be found in Agricultural Report of Comm. of Patent Office, 1853, page 388.

The introduction of wheat into the western hemisphere dates back to the first establishment of European settlements in Illinois to about the middle of the 18th century. We add a summary sketch of the controversy amongst the French botanists, which arose in the last years, about the origin of wheat.

The report of the commissioner of patents, 1853, mentions the experiments made by Mr. Esprit Fabre, at Agole, in France, who asserts, that certain kinds, if not all, of our cultivated wheats are nothing more than peculiar forms of Ægilops Ovata, L., or of Ægilops Triaristata, Willd. From the Ægilops Ovata he has succeeded in producing a true wheat: which, from careful cultivation in the open field for four consecutive years, has retained its form and yields harvest like those of other wheat. (Des Ægilops du midi de la France et de leur transformation par E. Fabre, Montpellier, 1853.)

Mr. Godron, 1854, published, in Ann. de Sc. IV., 1, 215, a memoir, "De la Fecondation, Naturelle et Artificielle, des Ægi-

cum form only one genus; and 3, that the observations of Mr. Fabre by no means prove neither that the cultivated wheat is derived from Ægilops Ovata, nor that one species can be transformed into another species. Ægilops Triticoides, Reg., being nothing else than an hybrid, gradually returning to the original form of one of its parents.

In 1855 Mr. Jordan published his researches into this matter, in Ann. d. Sc. IV., 4, 295. (Memoire sur l'Ægilops Triticoides, etc.) He demonstrates that Ægilops Triticoides, Reg., the plant of Mr. Godron, is nothing else than a sterile deformity of Ægilops Ovata, L.; and the pretended transition form of Mr. Fabre is a proper species, introduced, as so many other plants around Montpellier, from the orient, viz: Ægilops Speltæformis, Jordan.

Mr. Godron again defends his experiences in an article published in Ann. d. Sc. IV., 5, 71. He makes the following statements:

Jordan simply denied the observation of Fabre and Dunal; but he. (Godron,) himself, had submitted the same to further examination, which, not being founded on hypothesis, resulted in the following certain facts: From grains out of the same spike of Ægilops Ovata have been produced two different Ægilops, to-wit: Ægil. Ovata and Æg. Triticoides. The spikes of Ægilops Ovata, which have been fecundified with the pollen of Triticum vulgare barbatum, produced Ægilops Triticoides, with long awns, such as Requien observed. Ægilops Ovata fecundified by Triticum vulgare muticum produced an Æg. Triticoides with very short awns. The latter form, of which Jordan makes no mention, grows in a wild state near Montpellier.

As to the sterility of Æg. Triticoides, Godron denies the same, having some instances of the contrary. But even if that should be the case, it would be no argument—many true species of grasses being propagated only by shoots.

When Jordan establishes a new genus, Spelta, out of the genus Triticum, Godron says: "Ægilops and Triticum form really one genus, which has been separated artificially."

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We have given a brief account of the above mentioned publications, but we are not yet prepared to adopt either the one or the other of those different opinions.

Fabre and Dunal adhere to Lamark's theory of transmutation of species; but we know that wheat, at least, in historical time, has not been subject to any change, as it is a fact that grains out of the Egyptian sarcophagus produced exactly the same form of wheat as our cultivated one. Godron fights in the file of the advocates of hybridity. We believe that, in an artificial way, hybridity is possible between species of grasses; but against their spontaneous hybridation is the fact that the foundation of the hermaphrodite grass flowers proceeds in the bud, when the glumes are closed together.

Jordan belongs to the most pertinacious advocates of the stability of species, and to those botanists who are fond of separating genera and multiplying species. Godron very properly blames him that, although in analytical investigations giving a great weight to small differences in regard to size or distinctness of teeth, awns, nerves, etc., he pays not enough attention to the experiments of others, and, disregarding the facts, as stated by them, rather adheres to his speculative theories.

This matter is interesting enough to cause further investigation.

SECALE CEREALE, L. Rye.

Different opinions have been entertained about the native country of the rye, but indeed it has not yet been found in a wild state. Linnæus, and afterwards Persoon and Nuttall, both copying the former, call the Isle of Creta the home of the rye; Kunth, and after him Studel, the region of the Caspian Sea; and C Koch, pretended to have found Secale cereale in a wild state in West Armenia; but Ledebour, who has seen the plant collected by C. Koch, identified the same with Secale anatolicum, Boiss, a new species, spread over Asia Minor from Bithynia to Armenia. There are

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the Celtic Segal, from which is derived the French word Seigle. The Spanish name centeno (meaning centesimal) is no original name. The Germanic nations as well as the Slavonian use proper names, Roggen, Rye, Zyto, an indication of the very ancient culture of this bread crop amongst those northern nations, between the Caspian Sea and the Atlantic Ocean.

A. De Candolle (Geogr. Botan. I, 938) takes into consideration a fact, which points at the eastern part of this tract of land as the native country of the rye. In France, Switzerland, Italy, etc., the rye grows spontaneously, sometimes on land on which it was cultivated the preceding year; but not beyond the limits of that cultivated land. In the eastern part of Europe, particularly in Hungary, Dalmatia, and Transylvania, the rye is found on roadsides, and even in prairies. De Candolle arrives at the conclusion that the culture of rye has been established all over those localities, where the plant is found in a wild state. And indeed this seems to be the case with most of the cultivated plants of uncertain origin. They are cultivated in their original home. They occupy the whole territory in a cultivated state, wherever natural conditions produced them in a wild state; or the climate and the quality of ground changed in the course of time, and they do not grow any more, neither wild nor cultivated, in their original home.

HORDEUM VULGARE, L. Barley.

The barley is called in the French language, orge; in the German, Gerste; in the Spanish, Cebada.

There are seven cultivated species of barley, of which two are found in Abyssinia (Hordeum deficiens, Steud, and Hordeum macrolepis A. Braun,) one in East India (H. Himalayense Ritter,) and four in Europe, (D. Zeocriton, L., H. Hexastichon, L. the six rowed barley, Bigs, H. Distichum, L., the two rowed barley, and H. vulgare, L., the four rowed barley, which is the most cultivated in this country.)

We follow A. De Candolle in search of the original home of the common barley. It was cultivated in the most ancient times, in Egypt and Syria, not in China. In India the six rowed species has a Sanscrit name. The Romans cultivated the two rowed and

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Passages in Deuteronomy and Diodorus of Sicily, call Palestine the home of barley and wheat. Moses of Chorene indicates the bank of the Kur, in Georgia, south of the Caucasus, Berose, Babylonia, Marco Polo, the province of Balaschiana in North India; Theophrastus and Pliny, India; Pausanias, Phrygia, in Asia Minor, as the home of barley. But these authors did not sufficiently distinguish the cultivated and the spontaneous plant—at all events the species, which they mean, is uncertain.

Olivier, a traveler in the Orient from 1792–98, pretended to have found the barley, several times, in a wild state in Mesopotamia. O. A. Meyer, in his catalogue of plants the Caucasus, affirms that of Hordeum distichon, L., grows spontaneously on the prairies west of the Caspian Sea, between Lenkoran and Baker.

C. Koch, on the Kur, in the south of the Caucasus, found the common barley only, cultivated, but he found a new species, H. spontaneum, in Shirwan, which he thought to be the type of Hord. zeocriton, L., and which Ledebour, having examined the specimen, reduced to a variety of Hordeum distichum, found by Kotschy, in Southern Persia. Willdenow says that Hordeum, vulgare grows wild in Sicily, and near Samara, in Russia; Hordeum distichon near the river Samara, in Tataria. The latter is in the neighborhood of the region where C. A. Meyer found Hordeum distichon. But the former indication is very doubtful, as Gassone, the best authority in this case, names no species of cultivated barley as spontaneous in his Synopsis Floræ Siculæ.

The above statements and the great variety of names with different roots, in the European languages, show that the primitive home spreads over a very large tract of land in the northern temperate zone of the Old World.

The culture of barley has, of all bread crops, the most northern extension. It reaches in Europe the 22d deg. north latitude; in America not far beyond the 50 deg. north latitude.. It grows and ripens on the Himalaya, at an elevation of 12,000 feet, and higher yet on the Cordilleras of South America. It was introduced into North America 1602.

AVENA SATIVA, L. Oats.

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nearly the Russian and Bohemian oves, and the Polish ovies, and this again the English oats.

In North England it is called hauer. The Tatars say sulu, the Hungarians, zab, the Illyrian nations, ovas, zob, silj, pir, jahri. Galenus (De alimentorum facultatibus,) says, that oats were abundant in Asia Minor.

This, and the fact that, like the rye, oats grow spontaneously on fields and roadsides in the eastern part of temperate Europe, indicates where we have to search for the original home of this plant. Linnæus, Persoon and other botanists, relying upon the statement of the navigator, Anson, regard the island Juan Fernandez as the original home of oats; but in Steudel's Plantæ Glumaceæ, we find amongst known species of the genus Avena, not one which grows wild in the said island; and from Chili, the next country, only three, and those three Chilian species. Avena arignensis, Steud., A. Preslii, Kunth, and A. Scabrivalvis, Trin., have 1–3 nerved glumes—the cultivated oats 5–9 nerved glumes. The fact that all the wild growing species, which are united in one characteristic section of the genus with the cultivated species, are found only in the Old World, is a sufficient objection to the above mentioned opinion, and gives to the oats an incontestible eastern origin.

In California a sort of oats is said to grow wild. We got the seeds of these oats with hygroscopic awns and rufescent hairiness, from a farmer, sent to him from California, under the name California oats.

After examination, we take it to be Avena fatua, L., or a variety of it—perhaps A. hirtula, Lag., which grows wild in the western Mediterranean region, and was probably introduced into California, with other grains, by the Spaniards. The Mexican species, A. trichopodia, Presl, has the glumes shorter, and only 1-3 nerved. In North America, oats were introduced in 1602.

PANICUM MILIACEUM, L.—Millet.

We do not know that millet is cultivated in this state. Therefore, only a few words. Several cultivated species of Panicum

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Mr. Lapham, in Wisc. Agr. Transactions III, calls the millet a native of Turkey—upon what authority we do not know.

FAGOPYRUM ESCULENTUM. Moench.—BUCKWHEAT.

The buckwheat was unknown to the Romans and Greeks. It is first mentioned as cultivated in the "Odenwald"—the mountains between Maine and Neckar, in Germany—under the name of heydenkorn, by Tragus, 1552. Cæsalpin, in 1583, describes it as cultivated in Italy, under the name of Formentone, or Saresinum. The name Fagopyrum was established by the botanists, because of the resemblance of the grain to the beechnut. The French name, ble' Sarrasin, has been interpreted in different ways. Reynier derives it from the Celtic words "had rasin" (red wheat;) but this term does not exist in the Bretonic dictionaries. It is more probable that the name Sarrasin is derived from the dark color of the grain, which color is a popular attribute of the Moors and Saracens; or the buckwheat has been thought to be introduced by the Saracens, from Asia, into Northern Africa, and thence into Spain and Southern Europe. Bosc, in the Dictionnaire d' Agriculture, says so; but without any proof.

Neither Ebn Baithar, an Arab physician in Sevilla, in the xiii century, in his writings, speaks of the same; nor Desfontaines, in Flora Atlantica, nor Munby, in Flore d' Alger, nor Boissier, in his Voyage en Espagne.

Reynier remarks, in his Economie des Celtes, that the culture of buckwheat does not exist in Africa and Spain, and that it exists in France, just in those provinces into which the Arabs did not penetrate.

In India the plant is now cultivated; but certainly not in ancient times, as the plant has no Sanscrit name.

Link expressed the opinion that the buckwheat came to Europe from the east, which is confirmed by the popular names in the Russian empire. The Polish name, tatarka, and the Esthonian, tatrikat, signify that the plant was introduced from Tatarie

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ABSTRACT OF METEOROLOGICAL OBSERVATIONS.

'EORIA, ILLINOIS, 1st DECEMBER, 1855–30th NOVEMBER, 1856.

By Frederick Brendel, M. D.

I.—COMPARATIVE TABLE OF TEMPERATURE.

Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Year.
30	16.4	22.1	34.1	57.7	62	77.1	79.2	71.9	65.1	57.6	37.9	50.9
24.1	10.4	15.1	26.8	50.4	56.8	69.4	72.3	64.6	56.3	49.1	32.7	44
35.4	22.8	29.2	42.2	67.2	71.5	87.2	88.7	82.2	76.5	67.9	44.4	59.6
30.5	15.9	22	33.4	55.4	60.6	74.6	76.7	68.9	62.4	55.9	36.6	49.4
2.2	11.3	6.8	15.7	44.1	50	60.8	71	61.5	39.9	35.4	19.9	11.3
54.6	28.1	39.3	50	70.2	76.4	86.2	87.2	80.9	82.1	74.5	56.8	87.2
13	19.8	19.7	.5	27.5	41	47.8	57.9	45.5	34.3	21.3	11.8	19.8
57.9	36.5	47.8	61.3	88.3	95	100	100	91.6	95	90	61.3	100
70.9	56.3	67.5	60.8	60.8	54	52.2	42.1	46.1	60.7	68.7	49.5	119.8
*r*29.3	*r*27	*r*36	*r*33.8	*r*36	*f*42.7	*r*32.5	*r*32.6	*r*37.1	*f*42.8	*r*42.8	*f*30.6	*r*42.8 *f*42.8
16	.....	10	18	30	31	30	31	31	30	31	24	282
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
15	31	19	13	.....	.....	.....	.....	.....	.....	.....	5	83
12	.....	3	6	28	31	30	31	31	30	24	13	239
10	27	12	5	.....	.....	.....	.....	.....	.....	.....	1	55

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II.—COMPARATIVE TABLE OF CLEARNESS OF SKY, RAIN, SNOW, THUNDER STORMS, ETC.

	Dec.	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Year.
ely clear,	8	11	4	6	5	6	4	5	9	5	1	2	66
rately cloudy,	7	5	13	13	12	14	18	16	15	15	15	13	156
ast,	16	15	12	12	13	11	8	10	7	10	15	15	144
out sunshine,	9	11	3	1	.....	4	.....	.....	.....	.....	2	6	36
rain or snow,	10	5	7	3	9	6	6	8	4	9	9	8	84
ow, in inches,	.53	.8	.69	.17	.....	.....	.....	.....	.....	.....	.....	.13	2.32
ches,	3.23	.....	.34	.8	.8	4.8	1.5	2.83	1.39	.78	1.66	3.76	20.45
torms,	.....	.....	.....	.....	3	3	4	8	3	.....	2	.....	23
nd lightning, at distance,	.....	.....	.....	.....	1	.....	2	2	.....	.....	1	.....	6

III.—COMPARATIVE TABLE OF WINDS—THREE DAILY OBSERVATIONS.

	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Year.
	16	15	35	20	17	19	17	24	21	44	20	39	287
	23	21	6	4	9	3	2	18	18	15	18	12	149
	7	16	10	11	37	16	43	14	9	10	12	10	195
	23	10	11	6	6	3	9	4	.....	1	5	6	84
	10	.....	5	16	7	36	12	11	6	3	11	6	123
	.....	9	.....	4	3	4	1	4	5	.....	15	3	48
	1	6	10	20	9	9	3	11	12	13	7	4	105
	13	16	10	12	2	3	3	7	22	4	7	10	107
ind, (daily mean of the month,)	.....	.....	.....	.....	.....	.....	2.11	1.75	1.59	2.9	2.21	1.96	.....

rvations on the force of wind have been made only since June. The slightest breeze=1—the heaviest storm=10. The heaviest winds came and southwest, reaching the force of 7. Very windy days, (the force of at least one observation=5–7) have been June 3, 7, 12, 13; July 6, 18; September 12, 17, 18, 25, 27, 28; October 4, 13, 14, 24; November 4, 6, 21.

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METEOROLOGY FOR THE FARMERS.

LETTER FROM LIEUT. MAURY TO DR. KENNICOTT.

UNIVERSITY OF VIRGINIA, 18*th Sept.*, 1855.

MY DEAR SIR—I have taken the liberty of inclosing the copy of a piece from the American Farmer, that I might go further, and solicit your co-operation in giving effect to the plan of which it treats.

The outlines are general, but sufficient, it is hoped, to enable you to comprehend the main features of the plan. Should it strike you favorably, I would be glad if you would give it a helping hand, by bringing it before the proper society or societies in your state, for consideration.

As suggestive of the action of the society, and also, as indicative of the means by which the plan may be forwarded, be pleased to see the accompanying rough draft of a resolution.

I need not, I am sure, waste words in argumentation on one hand, or in apologies on the other, upon an occasion like the present. All that I have to add is simply to submit the proposition to you that I have made to the agricultural interests of the country, and to ask such help in bringing it to a favorable issue as, in your judgment, may seem good.

With great respect I have the honor to be, sir,

Yours, &c.,

M. F. MAURY.

DR. J. A. KENNICOTT,
Chicago, Illinois.

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METEOROLOGY FOR THE FARMERS.

By Lieut Maury, U. S. N.

Observatory, Washington, *June* 18, '55.

To the Editors of the American Farmer:

Gentlemen—I am much obliged to you for your favor of the 9th inst. You are right; I did not intend to confine the appeal to the farmers of any "pent up Utica." I intended to make it as broad as the land.

You ask for the plan of co-operation. It is very simple and calls on the farmers for little more than good will.

I first want authority to take the preliminary steps, and to confer with other meteorologists and men of science, at home and abroad, with the view of establishing a uniform system of meteorological observations for the land, as we have done for the sea.

If any officer of the government were authorized to say to the farmers, as I have to the sailors, here is the form of a meteorological journal; it shows you the observations that are wanted, the hours at which they are to be made; tells what instruments are required, and how they are to be used; take it, furnish the government with the observations, and in return the government will discuss them, and give you a copy of the results, when published—he would have at once, and without cost, a volunteer corps of observers that would furnish him with all the data requisite for a complete study of both agricultural and sanitary meteorology.

Such an offer to the sailors has enlisted a corps of observers for the sea, by whose co-operation results the most important and valuable, and as unexpected as valuable, have been obtained.

Could not at least one farmer be found on the average for eve-

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farmers, we shall have the whole surface of our planet covered with meteorological observers, acting in concert, and eliciting from nature, under all varieties of climate and circumstance, answers to the same questions, and that, too, at no other expense than what each government should choose to incur for the discussion and publication of the observations that are made by its own citizens or subjects.

What is wanted in a system of observations like this, is uniformity. Hence, co-operation—an agreement to observe the same things at the same times—is essential to anything like success. We want not only corresponding observations as to the time, but we want them made with instruments that are alike, or that can be compared; and then we may expect to find out something certain and valuable concerning the movements of this grand and beautiful machine, called the atmosphere.

Suppose a pretentious fly should place itself upon a steam engine, and, from its own little narrow contracted field of observation, attempt to expound the structure of the entire machine. If it had the intelligence both to observe and to reason, it would not find itself more bewildered than any one does and must who, from an isolated series of meteorological observations, attempts to learn the laws which govern the atmosphere and regulate climates.

If you ask me to state, beforehand, what particular discoveries or special results of value I expect to make, I answer, if I could tell, I would not ask your assistance to make them. The fields meteorological are large—there are many of them—and all that I do know about them is, that there is in them *mighty* harvests of many sorts.

Some years ago I commenced such a system for the sea, as I am now advocating—and as I now both see and feel the necessity of —for the land. After we had been at work a little while, and begun to gather in a harvest of useful results, by discovering new

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by congress—for the secretary was authorized to let me have these three small vessels only in case they should cost nothing—there is a promise of a submarine telegraph across the Atlantic. We are told by the public prints, that a company has been formed for the purpose, the money raised, contracts made, and the cable that is to hold the wires and span the ocean commenced to be made. I have a piece of it now on the table before me.

One of the results of getting the wires across, will be to place the farmers, with their provision markets and produce, exactly half the distance in time—and time now seems to be the only true measure of distance—from Europe that they now are. Let us illustrate the value, in one respect only, of this telegraph to the farmers.: A demand springs up in England for breadstuffs, for instance. The news must now wait for the steamer to sail before it is ready to come; and by the time she reaches our shores, and the produce can be sent forward, the chief granaries of Europe have been ransacked, and the American dealer finds himself too late in the market.

But when that telegraphic plateau, which we have discovered in the Atlantic, shall be threaded with the magnetic cable, the intelligence will be known in New York, Cincinnati, St. Louis and New Orleans, as soon as it is in Liverpool. Straightway the produce is put in motion, and, instead of coming in "the day after the fair," as is now too often the case, it will arrive with the young of the flood that comes rolling in from the east to meet the demand. By this achievement, or by the achievements which these investigations at sea have already accomplished in the shortening of voyages and saving of time, who have been the greater gainers, the farmers or the merchants?

Storms on land have a beginning and an end; that is, they commence at one place, and frequently, after several days' travel, end at some other; at least, so it is held. What would it be worth to the farmer, or the merchant, or to any body, if he could know, with something like certainty, the kind of weather he might expect one, two, three or more days ahead? I think it not

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weather, such as gales, rains, snow storms and the like; so that by knowing in what part of the country a storm had arisen, we should—learning through the telegraph the direction it might take—be enabled to calculate its rate of travel, and to predict, within a few hours, the time it would arrive at different places on its line of march; and, knowing these, the telegraphic agency, which the newspaper press of the country has established here, would, without more ado or further cost, make the announcement the next morning in all the papers of the land. I allude to this as an exemplification, only, of some of the first fruits of the plan. I do not suppose that we should be able to telegraph in advance of every shower of rain; but, without doubt, the march of the rains that are general can be determined in time to give the people in some portions of the country, at least, warning of their approach.

Such an office as will be required here in Washington to carry out the details of this plan is already in existence. It was established by Mr. Calhoun, when he was secretary of war, and it is under the control of the surgeon general of the army. There the meteorological observations that are made at our military posts are discussed and published; and one of the most valuable and interesting reports concerning the meteorology and climates of our country that has ever appeared is now in course of publication there. Or such an office might be made a branch of the "agricultural division of the patent office." In either case, the nucleus for it is already in existence, and the only expense necessary would be on account of the addition to the force of the office that would be required to discuss the observations after they are made.

Hence, you will perceive that what I want is, that the farmers and printers, and all who are interested in the weather, should not only give me their good will, but that they should use their influence in helping to bring about such a system of meteorologi-

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Will you not bring the subject, in some tangible shape, before the agricultural societies of the country? A simple memorial from them to congress would not fail to procure all the legislative aid necessary.

Some of the leading scientific men of Europe are ready to join us in such a plan; and with authority to confer with them *officially* as to details, I have no doubt that most of the governments of the world would undertake, each for itself, and within its own territories, a corresponding series of observations, so that we should then be able to study the movements of this great atmospherical machinery of our planet, as a whole, and not, as hitherto, in isolated, detached parts.

Respectfully, &c.,

M. F. MAURY, *Lt. U. S. N.*

N. B.—Series of observations, more or less extensive, have been undertaken in various parts of the country, and for objects more or less general and useful. Among them may be mentioned those of the Smithsonian Institution, under the direction of Prof. Henry, the immediate object of which is an investigation of the law of storms. Several of the states and many individuals are co-operating with him; also, those of Louisiana, by Dr. Barton, concerning sanitary laws, and those of Prof. Espy, and others.

It is hardly necessary to add that the plan now proposed is not calculated to interfere with any of these; on the contrary, it is in furtherance of them all, and differs from them only in being universal, and in establishing co-operation and concert between the observers at sea and those on land.

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CATALOGUE OF THE PLANTS OF THE STATE OF ILLINOIS.

By I. A. Lapham, of Milwaukee, Wisconsin.

During several journeys through the state of Illinois, at various times, since the year 1836, I have carefully noted her botanical productions, and hence am able to make a catalogue of the species growing within her boundaries. But the following enumeration embraces many species which I have admitted on the authority of others.

As early as 1794, Andre Michaux, a distinguished botanist of France, visited Illinois in search of plants, which were to be sent home to enrich the gardens and pleasure grounds of his own beautiful country. In 1803 was published, in Paris, his "Flora Boreali-Americana," the first general work on the botany of North America, in which a number of plants are set down as having been found "*in regione Illinoensis*," or "*in vastissimus pratensibus Illinoensibus*."

In 1826 Dr. Lewis C. Beck published his contributions towards the botany of Illinois and Missouri, in the 10th and 11th volumes (1st series) of Silliman's American Journal of Science and Arts. But most of the localities mentioned by Dr. Beck are in Missouri. In the same work, volume 46, for 1843, we find a catalogue of a collection of plants made in Illinois and Missouri, by Charles A. Geyer, with critical remarks, &c., by George Engelmann, M. D., of St. Louis. In this paper several new species are described, and quite a number added to the flora of the state.

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much to our knowledge of the peculiar vegetation of the central portions of the state. I cannot resist the temptation to copy a few of his very graphic descriptions:

"In a geographical point of view, the surface of Illinois may be very appropriately, as it is naturally, divided into three districts. First—the heavily timbered tracts which, for the most part, occupy the southern portion of the state, bordering on the Ohio river, and which, extending into the middle and northern portions, are found in detached bodies, surrounded by prairies, and in these situations are called 'groves.' These groves are, for the most part, contiguous to and often bounded by water courses, which have preserved them from the action of fire. Secondly—the open prairies of from one to twenty miles in diameter, entirely destitute of trees, and indeed of all other woody plants, except along the margin of water courses which occasionally pervade them. Thirdly—the 'barrens,' or tracts somewhat intermediate between the two former, being sparsely covered with oak trees of several different kinds, and of considerable size, with a dense undergrowth of various shrubs and annual plants. The third region bears a close relationship, both in appearance and productions, to the districts in Kentucky, which are called 'barrens'—tracts of country which seem to be in a state of transition from more open prairies to densely timbered forests. The vegetation of these three districts is, of course, essentially different; but apart from the presence or absence of trees, which constitute the grand feature of distinction, the annual and suffruticose plants are widely different, and indeed in many respects entirely dissimilar. Even the productions of the open prairies vary greatly as the surface of the prairie may be high, rolling, rich and dry, or low, flat, wet and clayey.

"On fairly entering the prairie region, and reaching the centre of one of these immense natural meadows, the view presented to the eye of a novice in such scenery is one of the most pleasing sort. But beautiful, imposing, and even grand, as is this spectacle, I must own that, in a botanical point of view, I was disappointed. The flora of the prairies—the theme of so much admiration to those who view them with an ordinary eye—does not

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species occuring anywhere. Thus, from some elevated position in a large prairie, the eye takes in, at a glance, thousands of acres literally empurpled with the flowering spikes of several species of *liatris;* in other situations, where a depressed or flattened surface and clayey soil favor the continuance of moisture, a few species of yellow-flowered coreopsis occur in such profuse abundance as to tinge the entire surface with a golden burnish. This peculiarity of an aggregation of individuals of one or more species to something like an exclusive monopoly of certain localities, obtains even in regard to those plants which are the rarest and least frequently met with; for whenever one specimen was found, there generally occurred many more in the same immediate neighborhood."

After enumerating the principal species of Gramineæ, Dr. Short adds: "All these grasses, in their young and tender states, are eagerly devoured by cattle. As they become harder and less succulent by age the coarser are rejected, and the more tender are sought for. Among these, I believe, the *vilfa* is a general favorite, both for grazing and for hay. All of them, however, are cut promiscuously for this purpose, and when they occur, as frequently they do, in large natural meadows, occupying the ground to the almost entire exclusion of other vegetables, they yield a productive return to the labor of the mower; and when well cured make excellent hay. Our horses, which had never before been accustomed to any other than the cultivated grasses, ate this natural hay with great avidity. The quality of these grasses, both for pasture and mowing, is much improved by the burning of the prairies during the winter, which, destroying the dead and dry stems, affords a better and earlier bite in the spring, as well as a cleaner swath for the scythe; and by protecting certain portions of the prairie from the action of fire until the spring or early summer, vegetation is then so much retarded by a late burn, as the settlers call it, as to afford good pasturage throughout the latter part of the season."

To Dr. S. B. Mead, of Augusta, Hancock county, I am indebt-

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To Dr. George Engelmann I am, also, much indebted for a list of the plants found in the southern part of the state, mostly opposite St. Louis. His accurate knowledge of the plants of this country is well known, and will give confidence to any statements that rest upon his authority.

In Wood's Class Book of Botany a number of species are credited to Illinois.

But, in addition to all these sources of information, I have had an opportunity to examine the extensive collections of plants made by Mr. Robert Kennicott, Mr. Emile Claussen, and others, and exhibited at the state fair held at Chicago, in 1855. This collection, besides adding quite a number to the species before known as belonging to the state, was of material aid in showing their distribution.

It will be readily understood, therefore, that the following is a pretty full list of the plants growing naturally within the state of Illinois. Further researches will undoubtedly reveal some new treasures; but compared with the whole, their number will be small.

A glance at the geographical position of Illinois, with a knowledge of her principal topographical features, will prepare us to look for a rich flora. Bordering on the great lakes; bounded on her whole western side by the great Mississippi river; with the valley of the Wabash on the east, and of the Ohio on the south, she is almost entirely surrounded by water. The southern extreme of the state lies in latitude 37 deg., or nearly as far south as the lower part of Kentucky and Virginia, and has an elevation of only two hundred and seventy-five feet at low water, at Cairo, above the ocean level. Here are found quite a number of plants that do not extend into the central and northern portions of the state. These are distinguished in the following catalogue by the letter S. The north line of the state is in latitude 43 deg. 30 min., and partakes in a considerable degree of the character of the south part of the adjoining state of Wisconsin. The plants in the following list found here, and which do not extend into the central and southern parts of the state, are distinguished by the letter N.

The central portions of the state lie on a nearly uniform plain,

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vegetation is destroyed. The time will soon come when many of the species here enumerated will exist no longer in Illinois. Already the number of "introduced" species (mostly vile weeds) is very considerable.

Mere catalogues of the plants growing in any locality might, without a little reflection, be supposed to possess but little value; a supposition which would be far from the truth. The intelligent farmer looks at once to the native vegetation as a sure indication of the value of new lands. The kinds of timber growing in a given locality will decide the qualities of the soil for agricultural purposes. The farmer will be interested to find how few of the plants he so assiduously cultivates are indigenous to the soil. The physician will see which of the plants having medicinal value may be gathered in his neighborhood; and may thus in cases of sudden emergency, when no time is allowed to send to a distant apothecary, be enabled to effect important cures. The cabinetmaker, the wheelwright and all other workers in wood will find what materials are at hand to answer their purposes. The horticulturist will look over the list with deep interest to find what flowers and shrubs may be obtained at home, and thus save the trouble and expense of purchasing and transporting from the east (perhaps covered with noxious insects,) the very plants he could have found near his own door.

Such lists are also useful, in a scientific point of view, as showing the geographical limits of species, and their diffusion, whether general or confined to limited districts. Many very useful as well as highly interesting results are obtained by comparing different catalogues and by the study of the statistics of different floras.

It will be seen by this enumeration that there are over seventy species in Illinois that attain the height and dignity of forest trees, including twelve or thirteen species of oak. The rich bottom lands along the margins of the Mississippi, the Ohio, and the Wabash, afford specimens of the noblest and most gigantic trees

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den region, through which, in reference to the lights of science, and the labors of civilization, it may truly be said:

> He bent his way where twilight reigns sublime
> O'er forests silent since the birth of time!"*

The "Sylva Americana" of his son remains to this day the only standard work on the Forest Trees of the United States.

*Dr. C. W. Short on the Progress of Western Botany, p. 7.

LIST of the Natural Orders of Illinois Plants, with the number of indigenous and introduced species; and the whole number of species native of the northern United States, (including Kentucky and Virginia) from Dr. A. Gray's Manual, 2d Edition.

Orders.	Illinois Plants.			Indigenous in Northern U. S.
	Indigenous.	Introduced.	Total.	
Ranunculaceæ,	30	.....	30	49
Magnoliaceæ,	2	.....	2	6
Anonaceæ,	1	.....	1	1
Menispermaceæ	2	.....	2	3
Berberidaceæ	2	.....	2	5
Nelumbiaceæ,	1	.....	1	1
Cabombaceæ,	1	.....	1	1
Nymphaceæ,	2	.....	2	2
Papaveraceæ,	2	.....	2	2
Fumariaceæ,	2	1	3	6
Cruciferæ,	18	4	22	46
Caparidaceæ,	1	1	2	1
Violaceæ,	7	1	8	18
Cistaceæ,	3	.....	3	7
Parnassiaceæ,	2	.....	2	3
Hypericaceæ,	9	.....	9	18
Caryophyllaceæ,	10	2	12	30
Portulaccaceæ,	1	1	2	4
Malvaceæ,	4	3	7	9
Tiliaceæ,	1	.....	1	2
Linaceæ,	2	.....	2	2
Oxalidaceæ,	2	.....	2	3
Geraniaceæ,	2	.....	2	3
Balsaminaceæ,	2	.....	2	2
Rutaceæ,	2	.....	2	3
Anacardiaceæ,	5	.....	5	6
Vitaceæ,	4	.....	4	7
Rhamnaceæ,	2	.....	2	6
Celastraceæ,	4	.....	4	4
Sapindaceæ,	8	.....	8	10

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List—Continued.

Orders.	Illinois Plants.			Indigenous in Northern U. S.
	Indigenous.	Introduced.	Total.	
Loasaceæ	1	.....	1	1
Cactaceæ	1	.....	1	1
Grossulaceæ	2	.....	2	7
Passifloraceæ	1	.....	1	2
Cucurbitaceæ	2	.....	2	2
Crassulaceæ	2	.....	2	5
Saxifragaceæ	3	.....	3	22
Hamamelaceæ	1	.....	1	3
Umbelliferæ	19	2	21	37
Araliaceæ	3	.....	3	6
Cornaceæ	6	.....	6	11
Caprifoliaceæ	11	.....	11	27
Rubiaceæ	13	.....	13	22
Compositæ	166	7	173	273
Lobeliaceæ	5	.....	5	12
Campanulaceæ	4	.....	4	5
Ericaceæ	3	.....	3	62
Aquifoliaceæ	2	.....	2	10
Ebenaceæ	1	.....	1	1
Sapotaceæ	1	.....	1	1
Plantaginaceæ	5	1	6	6
Primulaceæ	7	.....	7	16
Lentibulaceæ	2	.....	2	12
Bignoniaceæ	2	2	4	2
Orobanchaceæ	2	.....	2	5
Scrophularinaceæ	30	4	34	54
Acanthaceæ	3	.....	3	3
Verbenaceæ	6	2	8	7
Labiateæ	28	7	35	49
Boraginaceæ	14	2	16	16
Hydrophyllaceæ	5	.....	5	11
Polemoniaceæ	6	.....	6	12
Convolvulaceæ	11	1	12	15
Solanaceæ	6	4	10	4
Gentianaceæ	9	.....	9	24
Apocinaceæ	3	.....	3	4
Asclepiadaceæ	14	.....	14	21
Oleaceæ	3	.....	3	9
Aristolochiaceæ	3	.....	3	6
Nyctaginaceæ	1	.....	1	1
Phytolaccaceæ	1	.....	1	1
Chenopodiaceæ	2	6	8	10
Amarantaceæ	3	4	7	5
Polygonaceæ	17	3	20	22
Lauraceæ	2	.....	2	5
Santalaceæ	1	.....	1	3
Loranthaceæ	1	.....	1	1
Saururaceæ	1	.....	1	1

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List—Continued.

Orders.	Illinois Plants.			Indigenous in Northern U. S.
	Indigenous.	Introduced.	Total.	
Betulaceæ,	1	.....	1	10
Salicaceæ,	9	.....	9	24
Coniferæ,	3	.....	3	20
Araceæ,	3	.....	3	7
Typhaceæ,	3	.....	3	7
Lemnaceæ,	3	.....	3	5
Naidaceæ,	6	.....	6	16
Alismaceæ,	7	.....	7	12
Hydrocaridaceæ,	2	.....	2	3
Orchidaceæ,	17	.....	17	51
Amaryllidaceæ,	2	.....	2	4
Iridaceæ,	2	.....	2	6
Dioscoriaceæ,	1	.....	1	1
Smilaceæ,	8	.....	8	18
Liliaceæ,	13	1	14	24
Melanthaceæ,	4	.....	4	21
Juncaceæ,	6	.....	6	26
Pontederiaceæ,	3	.....	3	4
Commelynaceæ,	5	.....	5	6
Cyperaceæ,	97	.....	97	213
Gramineæ,	102	12	114	162
Total Phænogamous,	1029	75	1104	2036
Equisetaceæ,	4	.....	4	10
Filices,	19	.....	19	49
Total,	1052	75	1127	2095

LIST of the principal Natural Orders, arranged according to the number of Indigenous Orders in

Illinois.		Northern U. S.	
Compositæ,	166	Compositæ,	273
Graminæ,	102	Cyperaceæ,	213
Cyperaceæ,	97	Gramineæ,	162
Leguminoseæ,	49	Leguminoseæ,	91
Rosaceæ,	32	Rosaceæ,	71
Scrophularinaceæ,	30	Ericaceæ,	62
Ranunculaceæ,	30	Scrophularinaceæ,	54
Labiateæ,	28	Orchidaceæ,	51
Umbilliferæ,	19	Ranunculaceæ,	49
Cruciferæ,			

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ering plants; one hundred and two of Gramineæ, or true grasses; ninety-seven of Cyperaceæ, or sedge grasses; and forty-nine of Leguminoseæ, or plants of the pea family. The whole number of species—one thousand and fifty-two—is almost exactly half the number found to be natives of the Northern United States; and the same remark holds good when we compare the numbers of each of the great classes of plants. It will be seen, too, that there are, in Illinois, more true grasses than Cyperaceæ; while in the whole Northern United States the reverse is true, and that the species are more concentrated into the larger orders. The large orders, Compositæ, Graminæ, Leguminoseæ, Scrophularinaceæ, Ranunculaceæ, Labiateæ and Umbilliferæ contain, respectively, more than half the species of the Northern United States while only Cyperaceæ and Rosaceæ, among the larger orders, contain less.

Of one hundred and thirty-two orders, found native in the Northern United States, one hundred and eleven are represented in Illinois.

RANUNCULACEÆ. The Crow-Foot Family.

Clematis, Linnæus. Virgin's Bower.

viorna, Linn. Leather Flower.
Pitcherii, Torr. & Gray.
Virginiana, Linn. Common Virgin's Bower.

Pulsatilla, Tournefort. Pasque-flower.

Nuttalliana, A. Gray. (Anemone patens, Hook.)

Anemone, Linnæus. Wind-flower.

Caroliniana, Waltr. S.
cylindrica, A. Gray.
Virginiana, Linn.
Pennsylvanica, Linn.
nemorosa, Linn. Low-anemone.

Hepatica, Dillenius. Liver-leaf.

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TRAUTVETTERIA, Fischer & Meyer. False Bug-bane.
palmata, F. & M. (Cimicifuga palmata, Michx.)

RANUNCULUS, Linnæus. Crow-foot. Butter-cup.
aquatilis, Linn. White Water-Crowfoot.
Purshii, Richards. Yellow Water-Crowfoot.
flammula, Linn.
cymballaria, Pl. N.
abortivus, Linn.
micranthus, Nutt.
recurvatus, Poir.
fascicularis, Muhl.
repens, Linn. Creeping Crowfoot.

MYOSURUS, Dillenius. Mouse-tail.
minimus, Linn. S.

ISOPYRUM. Linnæus.
biternatum, Torr. & Gray.

CALTHA, Linnæus. Marsh Marigold.
palustris, Linn.

AQUILEGIA, Tournefort. Columbine.
Canadensis, Linn. Wild Columbine.

DELPHINIUM, Linnæus. Larkspur.
tricorne, Michx.
azureum, Michx.

HYDRASTIS, Linnæus. Orange-root.
Canadensis, Linn.

ACTÆA, Linnæus. Cohosh.
spicata, Linn, (var. alba.) White cohosh.

MAGNOLIACEÆ. THE MAGNOLIA FAMILY.

MAGNOLIA. Linnæus.

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MENISPERMACEÆ. The Moonseed Family.

Cocculus, De Candolle.
Carolinus, De C. S.

Menispermum, Linnæus. Moonseed.
Canadense, Linn. (Called "Sarsaparilla.")

BERBERIDACEÆ. The Barberry Family.

Caulophyllum, Michaux.
thalictroides, Michx. Blue cohosh. Pappoose-root.

Podophyllum, Linnæus.
peltatum, Linn. May Apple.

NELUMBIACEÆ. The Nelumbo Family.

Nelumbium, Jussieu.
luteum, Willd. Sacred bean.

CABOMBACEÆ. The Water-Shield Family.

Brasenia, Schreber. (Hydropeltis, Michx.)
peltata, Pursh.

NYMPHÆACEÆ. The Water-Lily Family.

Nymphæa, Tournefort.
odorata, Ait. White Water-lily.

Nuphar, Smith.
advena, Ait. Yellow Water-lily.

PAPAVERACEÆ. The Poppy Family.

Stylophorum, Nuttall. Celendine.
diphyllum, Nutt. (Meconopsis, De C.) S.

Sanguinaria, Dillenius. Blood-root.

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FUMARIA, Linnæus. Fumatory.
officinalis, Linn. Introduced.

CRUCIFERÆ. THE MUSTARD FAMILY.

NASTURTIUM, Robert Brown. Water-cress.
palustre, De C.
lacustre, A. Gray.

IODANTHUS, Torrey and Gray. False Rocket.
hesperidoides, T. and Gray. (Hesperis pinnatifida, Michx.)

DENTARIA, Linnæus. Toothwort.
laciniata, Muhl.

CARDAMINE, Linnæus. Bitter-cress.
rhomboidea, De C. Spring-cress.
hirsuta, Linn.

ARABIS, Linnæus. Rock cress.
Ludoviciana, Meyer.
lyrata, Lynn. N.
dentata, Torr. & Gray.
lævigata, De C.
Canadensis, Linn. Sickle-pod.

ERYSIMUM, Linnæus. Treacle Mustard.
cheiranthoides, Linn.
Arkansanum, Nutt.

SISYMBRIUM, Linnæus. Hedge Mustard.
officinale, Scop. Introduced.
canescens, Nutt.

SINAPIS, Tournefort. Mustard.
arvensis, Linn. Field Mustard. Introduced.
nigra, Linn. Black Mustard. Introduced.

DRABA, Linnæus. Whitlow Grass.
brachycarpa, Nutt.
cuneifolia, Nutt.
Caroliniana, Waltr.

LEPIDIUM, Linnæus. Pepper Grass.

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CAPPARIDACEÆ. The Caper Family.

Synandropsis, De Candolle.
pentaphylla, De C. Introduced. S.

Polansia, Rafinesque.
graveolens, Raf.

VIOLACEÆ. The Violet Family.

Viola, Linnæus. Violet.
cucullata, Ait. Blue Violet.
palmata, Linn.
sagittata, Ait.
delphinifolia, Nutt.
pedata, Linn.
striata, Ait.
pubescens, Ait. Yellow Violet.
tricolor, Linn. Pansy. Introduced.

CISTACEÆ. The Rock Rose Family.

Helianthemum, Tournefort. Rock Rose.
Canadense, Michx.

Lechea, Linnæus. Pin Weed.
major, Michx.
minor, Lam.

PARNASSIACEÆ. The Parnassia Family.

Parnassia, Tournefort.
palustris, Linn.
Caroliniana, Michx.

HYPERICACEÆ. The St. Johns-wort Family.

Hypericum, Linnæus. St. Johns-wort.
pyramidatum, Ait.
proliferum, Linn.

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ELODEA, Pursh.
Virginica, Nutt.

CARYOPHYLLACEÆ. THE PINK FAMILY.

§ 1. *Sileneæ.*

SAPONARIA, Linnæus. Soapwort.
officinalis, Linn. Bouncing Bet. Introduced.

SILENE, Linnæus. Catchfly.
stellata, Ait. Starry Campion.
nivea, De C.
Virginica, Linn. S.
regia, Sims.
antirrhina, Linn.

AGROSTEMMA, Linnæus. Cockle.
githago, Linn. Introduced.

§ 2. *Alsineæ.*

MŒHRINGIA, Linnæus.
lateriflora, Linn. (Arenaria lateriflora, Linn.)

STELLARIA, Linnæus. Chickweed.
longifolia, Muhl.

CERASTIUM, Linnæus.
nutans, Raf.

§ 3. *Illecibreæ.*

ANYCHIA, Michaux.
dichotoma, Michx.

§ 4. *Mollugineæ.*

MOLLUGO, Linnæus. Carpet Weed.
verticillata, Linn.

PORTULACACEÆ. THE PURSLANE FAMILY.

PORTULACEA, Tournefort. Purslane.
oleracea, Linn. Introduced.

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MALVACEÆ. The Mallow Family.

Malva, Linnæus. Mallow.

rotundifolia, Linn. Introduced.

Callirrhœ, Nuttall.

triangulata, A. Gray. (Malva Houghtonii, T. and Gray.)

Napæa, Clayton.

dioica, Linn. (Sida dioica, Cav.)

Sida, Linnæus.

spinosa, Linn. Introduced. S.

Abutilon, Tournefort.

Avicennæ, Gærtn. Introduced. S.

Hibiscus, Linnæus.

moscheutos, Linn. Swamp Mallows. S.
militaris, Cav.

TILIACEÆ. The Linden Family.

Tilia, Linnæus. Linden.

Americana, Linn. Basswood.

LINACEÆ. The Flax Family.

Linum, Linnæus. Flax.

Virginianum, Linn. Wild Flax.
Boottii, Planchon. (L. rigida, Tor. and Gray.)

OXALIDACEÆ. The Wood Sorrel Family.

Oxalis, Linnæus. Wood Sorrel.

violacea, Linn.
stricta, Linn. Sheep's Sorrel.

GERANIACEÆ. The Geranium Family.

Geranium, Linnæus.

maculatum, Linn.
Carolinianum, Linn.

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RUTACEÆ. The Rue Family.

Zanthoxylum, Colden.

Americanum, Mill. Prickly Ash.

Ptelea, Linnæus.

trifoliata, Linn. Hop-tree

ANACARDIACEÆ. The Sumach Family.

Rhus, Linnæus. Sumach.

typhina, Linn. Stag-horn Sumach.
glabra, Linn. Smooth Sumach.
copallina, Linn. Dwarf Sumach.
toxicodendron, Linn. Poison Ivy.
aromatica, Ait. Fragrant Sumach.

VITACEÆ. The Vine Family.

Vitis, Tournefort. Grape.

æstivalis, Michx. Summer Grape.
cordifolia, Michx. Frost Grape.
riparia, Michx. Winter Grape.

Ampelopsis, Michaux.

quinquefolia, Michx. Virginia Creeper.

RHAMNACEÆ. The Buckthorn Family.

Rhamnus, Tournefort. Buckthorn.

lanceolatus, Pursh.

Ceanothus, Linnæus.

Americanus, Linn. New Jersey Tea.

CELASTRACEÆ. The Spindle Tree Family.

Celastrus, Linnœus.

scandens, Linn. Bittersweet.

Euonymus, Tournefort. Spindle-tree

atropurpureus, Jacq. Waahoo.
Americanus, Linn. Strawberry tree.

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SAPINDACEÆ. The Soapberry Family.

§ 1. *Staphyleaceæ.*

Staphylea, Linnæus.
trifolia, Linn. Bladder Nut.

§ 2. *Sapindaceæ.* (Proper.)

Cardiospermum, Linnæus.
halicacabum, Linn. Kaskaskia, Michaux.

Æsculus, Linnæus. Horse Chestnut.
glabra, Willd. Buckeye.
flava, Ait. Smooth-fruited Buckeye.

§ 3. *Acerineæ.*

Acer, Tournefort. Maple.
saccharinum, Wang. Sugar Maple.
dasycarpum, Ehrhart. Silver Maple.
rubrum, Linn. Red Maple.

Negundo, Mœnch. Box Elder.
aceroides, Mœnch. (Acer negundo, Linn.)

POLYGALACEÆ. The Milkwort Family.

Polygala, Tournefort. Milkwort.
incarnata, Linn.
sanguinea, Linn. (P. Purpurea, Nutt.)
verticillata, Linn.
ambigua, Nutt.
Senega, Linn. Seneca Snake-root. N.
polygama, Waltr.

LEGUMINOSEÆ. The Pea Family.

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PSORALEA, Linnæus.
onobrychis, Nutt.
melilotoides, Michx.
floribunda, Nutt. N.

DALEA, Linnæus.
alopecuroides, Willd.

PETALOSTEMON, Michaux.
violaceum, Michx.
candidum, Michx.

AMORPHA, Linnæus.
fruticosa, Linn.
canescens, Nutt. Lead Plant.

ROBINIA, Linnæus.
pseudacacia, Linn. Locust. S.

WESTARIA, Nuttall.
frutescens, De C. S.

TEPHROSIA, Persoon. Hoary Pea.
Virginiana, Pers.

ASTRAGALUS, Linnæus. Milk-vetch.
Mexicanus, A. De C. (A. trickocalyx, Nutt.) S.
Canadensis, Linn.
distortus, Torr. and Gray.

DESMODIUM, De Candolle. Tick Trefoil.
nudiflorum, De C.
acuminatum, De C.
pauciflorum, De C.
canescens, De C.
cuspidatum, Torr. and Gray.
viridiflorum, Beck.
Dillenii, Darlington. S.
peniculatum, De C. S.
Canadense, De C.

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LESPEDEZA, violaceum, Pers.
capitatum, Michx.

LATHYRUS, Linnæus.
venosus, Muhl.

PHASEOLUS, Linnæus.
perennis, Waltr. Wild Bean.
diversifolius, Pers.
helvolus, Linn.
pauciflorus, Benth. (P. leiospermus, T. and G.)

APIOS, Bœrhaave.
tuberosa, Mœnch.

AMPHICARPCÆA, Elliott.
monoica, Nutt. Wild Bean.

CLITORIA, Linnæus.
Mariana, Linn.

BAPTISIA, Ventenat. False Indigo
leucantha, Torr. and Gray.
leucophæa, Nutt.

CERCIS, Linnæus. Judas Tree.
Canadensis, Linn. Red-bud.

CASSIA, Linnæus.
Marilandica, Linn.
chamæcrista, Linn.
nictitans, Linn. Wild sensitive plant.

GYMNOCLADUS, Lamarck.
Canadensis, Lam. Kentucky Coffee Tree. S.

GLEDITSCHIA, Linnæus. Honey Locust.
triacanthus, Linn.
monospermum, Waltr. One seeded Honey Locust.* S.

DESMANTHUS, Willdenow.

Digitized by Google

CERASUS, Tournefort. Cherry.

Virginiana, De C. Choke Cherry.
serotina, De C. Wild Black Cherry.

SPIRÆA, Linnæus,

opulifolia, Linn. Nine Bark.
salicifolia, Linn. Meadow Sweet.
tomentosa, Linn. Hard Hack.
lobata, Murr.
aruncus, Linn. Goat's Beard. S.

GILLENIA, Mœnch.

stipulacea, Nutt. American Ipecac. S.

AGRIMONIA, Tournefort.

Eupatoria, Linn.
parviflora, Ait.

SANGUISORBIA, Linnæus. Burnet.

Canadensis, Linn.

GEUM, Linnæus. Avens.

Virginianum, Linn.
vernum, Torr. and Gray.

POTENTILLA, Linnæus. Five-finger.

Norvegica, Linn.
paradoxa, Nutt.
Canadensis, Linn. Five-finger.
arguta, Pursh.
fruticosa, Linn.

FRAGARIA, Tournefort. Strawberry.

Virginiana, Ehrh. Wild Strawberry.

RUBUS, Linnæus. Bramble.

occidentalis, Linn. Black Raspberry.
villosus, Ait. Blackberry.
Canadensis, Linn. Low Blackberry.
trivialis, Michx. S.

ROSA, Tournefort. Rose.

setigera, Michx. Climbing Rose.

Digitized by Google

CRATÆGUS, coccinea, Linn. Scarlet-fruited Thorn.
tomentosa, Linn. Black Thorn.
crus-galli, Linn. Cockspur Thorn.

PYRUS, Linnæus. Apple.
coronaria, Linn. Crab Apple.

AMELANCHIER, Medikus.
Canadensis, Torr. & Gray. June-berry.

MELASTOMACEÆ. THE MELASTOMA FAMILY

RHEXIA, Linnæus. Deer Grass.
Virginica, Linn.

LYTHRACEÆ. THE LOOSESTRIFE FAMILY.

HYPOBRICHIA, Curtis.
Nuttallii, Torr. and Gray.

AMMANNIA, Houston.
humilis, Michx.
latifolia, Linn.

LYTHRUM, Linnæus, Loosestrife.
alatum, Pursh.

CUPHEA, Jacquin.
viscosissima. Jacq.

ONAGRACEÆ. THE EVENING PRIMROSE FAMILY.

EPILOBIUM, Linnæus. Willow Herb.
palustre, Linn. N.
coloratum, Muhl.

ŒNOTHERA, Linnæus. Evening Primrose.
biennis, Linn.
sinuata, Linn.

Digitized by Google

Ludwigia, polycarpa, Short & Peter.
palustris, Ell.

Circæa, Tournefort. Enchanter's Nightshade.
Lutetiana, Linn.

Proserpinaca, Linnæus.
palustris, Linn.

Myriophyllum, Vaillant. Water Milfoil.
heterophyllum, Michx.

LOASACEÆ. **The Loasa Family.**

Mentzelia, Plumier. (Bartonia, Nuttall.)
oligosperma, Nutt.

CACTACEÆ. **The Cactus Family.**

Opuntia, Tournefort.
vulgaris, Mill.

GROSSULACEÆ. **The Gooseberry Family.**

Ribes, Linnæus.
rotundifolium, Michx. Swamp Gooseberry.
floridum, Linn. Wild Black Currant.

PASSIFLORACEÆ. **The Passion Flower Family.**

Passiflora, Linnæus. Passion Flower.
lutea, Linn. S.

CUCURBITACEÆ. **The Cucumber Family.**

Sicyos, Linnæus.
angulatus, *Linn.*

Echinocystis, *Torrey and Gray.*
lobata, *Torrey and Gray.*

CRASSULACEÆ. **The House Leak Family.**

Sedum, *Linnæus. Stone crop.*
ternatum, Michx.

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SAXIFRAGACEÆ. The Saxifrage Family.

Heuchera, Linnæus. Alum-root.

Americana, Linn.

hispida, Pursh. (H. Richardsonii, R. Brown.)

Hydrangea, Gronovius.

arborescens, Linn. Wild Hydrangea.

HAMAMELACEÆ. The Witch Hazel Family.

Liquidamber, Linnæus.

styraciflua, Linn. Sweet Gum. S.

UMBELLIFERÆ. The Umbel-bearing Family.

Hydrocotyle, Tournefort.

Americana. Linn.

Sanicula, Tournefort.

Marylandica, Linn. Sanicle.

Eryngium, Tournefort. Rattle snake Master.

yuccæfolium, Michx. (L. aquaticum, Linn.)

Polytænia, De Candolle.

Nuttallii, De C.

Heracleum, Linnæus.

lanatum, Michx. Cow Parsnip. N.

Pastinaca, Tournefort.

sativa, Linn. Wild Parsnip. Introduced.

Archemora, De Candolle.

rigida, Del. Cowbane.

Archangelica, Hoffmann.

hirsuta, Torrey and Gray.

Thaspium, Nuttall.

barbinode, Nutt. S.

aureum, Nutt. (Zizia aurea, Koch.)

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CICUTA, Linnæus. Water Hemlock.
maculata, Linn. (The root a deadly poison.)
bulbifera, Linn.

SIUM, Linnæus. Water Parsnip.
lineare, Michx, (near S. latifolium, of Europe.)

CRYPTOTÆNIA, De Candolle. Honewort.
Canadense, De C.

CHÆROPHYLLUM, Linnæus. Chervil.
procumbens. Lam.

OSMORRHIZA, Rafinesque. Sweet Cicely.
longistylis, De C.
brevistylis, De C.

ERIGENIA, Nuttall.
bulbosa, Nutt.

ARALIACEÆ. THE GINSENG FAMILY.

ARALIA, Tournefort.
racemosa, Linn. Spikenard.
nudicaulis, Linn. Wild Sarsaparilla. N.
quinquefolia, Grap. (Panox, Linn.) Ginseng.

CORNACEÆ. THE DOGWOOD FAMILY.

CORNUS, Tournefort. Dogwood.
floridas, Linn. Flowering Dogwood.
sericea, Linn.
stolonifera, Michx. Red twigged Dogwood. S.
asperifolia, Michx.
paniculata, L'Hert.

NYSSA, Linnæus.
multiflora, Wang. Tupelo. Sour Gum.

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DIERVILLA, Tournefort. Bush Honeysuckle.
trifida, Mœnch.

TRIOSTEUM, Linnæus. Horse Gentian.
perfoliatum, Linn.
angustifolium, Linn. S.

SAMBUCUS, Tournefort. Elder.
Canadensis, Linn.

VIBURNUM, Linnæus.
prunifolium, Linn. Black Haw.
obovatum, Waltr. (V. lævigatum, Ait.) S.
opulus, Linn. High Cranberry. N.

RUBIACEÆ. THE MADDER FAMILY.

GALIUM, Linnæus.
aparine, Linn. Goose-grass.
asprellum, Michx.
trifidum, Linn.
pilosum, Ait.
circæzans, Michx.

SPERMACOCE, Linnæus.
glabra, Michx. Button-weed.

DIODIA, Linnæus.
Virginica, Linn.
teres, Waltr.

CEPHALANTHUS, Linnæus.
occidentalis, Linn. Button-bush.

OLDENLANDIA, Plumier. (Houstonia & Hedyotis, Linn.)
purpurea, Gray.
minima, Gray.
coerulea, Gray. Bluets.

Digitized by Google

LIATRIS, Schreber.

squarrosa, Willd.
cylindracea, Michx.
scariosa, Willd.
spicata, Willd.
pycnostachya, Michx.

KUHNIA, Linnæus.

eupatorioides, Linn.

EUPATORIUM, Tournefort.

purpureum, Linn.
altissimum, Linn.
sessilifolium, Linn.
perfoliatum, Linn. **Boneset.**
serotinum, Michx.
ageratoides, Linn. **White Snake-root.**
aromaticum, Linn.

CONOCLINUM, De Candolle. **Mist-Flower.**

cœlestinum, De C.

ASTER, Linnæus. **Starwort.**

gracilis, Nutt.
sericeus, Vent.
concolor, Linn.
patens, Ait.
lævis, Linn.
turbinellus, Lindley.
azureus, Lindley.
Shortii, Boott.
undulatus, Linn.
cordifolius, Linn.
sagittifolius, Willd.
ericoides, Linn.
multiflorus, Ait.
dumosus, Linn.
Tradescanti, Linn.
miser, Linn.

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ASTER, Novæ-Angliæ, Linn. New England Aster.
anomalus, Englemann.

ERIGERON, Linnæus. Fleabane.
Canadense, Linn. Butter-weed.
divaricatum, Michx.
bellidifolium, Muhl.
Philadelphicum, Linn.
annuum, Persoon.
strigosum, Muhl.

DIPLOPAPPUS, Cassini.
linariifolius, Hook.
umbellatus, Torr. and Gray.

BOLTONIA, L'Hertier.
asteroides, L'Her.
glastifolia, L'Hert.

SOLIDAGO, Linnæus. Golden-rod.
latifolia, Linn.
petiolaris, Ait. S.
speciosa, Nutt.
rigida, Linn.
Ohioensis, Riddell.
Riddellii, Frank.
neglecta, Torr. and Gray.
arguta, Ait.
ulmifolia, Muhl.
Drummondii, Torrey and Gray. S.
nemoralis, Ait.
Missouriensis, Nutt.
radula, Nutt. S.
Canadensis, Linn.
scrotina, Ait.
gigantea, Ait.
lanceolata, Linn.
tenuifolia, Pursh.

GRINDELIA, Willdenow.
squarrosa, Dunal. S.

CHRYSOPSIS, Nuttall.

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INULA, Linnæus. Elecampane.
helenium, Linn. Introduced.

PLUCHEA, Cassina.
fœtida, De C.

POLYMMIA, Linnæus.
Canadensis. Linn.
uvedalia, Linn. S.

CHRYSOGONUM, Linnæus.
Virginianum, Linn.

SILPHIUM, Linnæus.
laciniatum, Linn. Compass Plant.*
terebinthinaceum, Linn. Prairie Dock.
integrifolium, Michx.
perfoliatum, Linn. Cup-plant.

PARTHENIUM, Linnæus.
integrifolium, Linn.

IVA, Linnæus.
ciliata, Willd.

AMBROSIA, Tournefort. Rag-weed.
bidentata, Michx.
tridentata, Linn.
artemisiæfolia, Linn. Hog-weed.
psilostachya, De C. (A. coronopifolia, T. and Gr.)

XANTHIUM, Tournefort. Cocklebur.
strumarium, Linn.
echinatum, Murr.

ECLIPTA, Linnæus.
procumbens, Michx.

HELIOPSIS, Persoon. Ox-eye.
lævis, Pers.

ECHINACEA, Mœnch.
purpurea, Mœnch.

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ECHINACEA, augustifolia, De C.

RUDBECKIA, Linnæus. Cone-flower.

laciniata, Linn.
subtomentosa, Pursh.
triloba, Linn.
speciosa, Wender.
hirta, Linn.

LEPACHYS, Rafinesque.

pinnata, Torr. and Gray.

HELIANTHUS, Linnæus. Sun-flower.

angustifolius, Linn.
atrorubeus, Linn.
rigidus, Desf.
lætiflorus, Pers.
occidentalis, Riddell.
mollis, Lam.
microcephalus, Torr. and Gray.
grosse-serratus, Martens.
tomentosus, Michx.
strumosus, Linn.
hirsutus, Raf.
tracheliifolius, Willd.
doronicoides, Lam. S.
tuberosus, Linn. Artichoke. Introduced

ACTINOMERIS, Nuttall.

squarrosa, Nutt.
helianthoides, Nutt.

COREOPSIS, Linnæus. Tick-seed.

discoidea, Torr. and Gray.
trichosperma, Michx.
aristosa, Michx.
tripteris, Linn.
senifolia, Michx.
palmata, Nutt.
auriculata, Linn.

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BIDENS, chrysanthemoides, Michx.
Beckii, Torr.
bipinnata, Linn. Spanish Needles.

VERBESINA, Linnæus.
Siegesbeckia, Michx.
Virginica, Linn.

DYSODIA, Cavanilles.
chrysanthemoides, Lagasca.

HYMENOPAPPUS, L'Hertier.
scabiosæus, L'Her.

HELENIUM, Linnæus.
autumnale, Linnæus. Sneeze-weed.

LEPTOPODA, Nuttall.
brachypoda, Torr. and Gray.

MARUTA, Cassini. May-Weed.
cotula, De C. Introduced.

ACHILLEA, Linnæus.
millefolium, Linn. Milfoil.

LEUCANTHEMUM, Tournefort.
vulgare, Lam. Ox-eye Daisy. Introduced.

MATRICARIA, Tournefort.
discoidea, De C. S. Introduced?

ARTEMISIA, Linnæus. Worm-wood.
candata, Michx.
Ludoviciana, Nutt.
biennis, Willd.

GNAPHALIUM, Linnæus. Cud-weed.
polycephalum, Michx.
purpureum, Linn.

ANTENNARIA, Gærtner. Everlasting.

Digitized by Google

CACALIA, reniformis, Muhl.
atriplicifolia, Linn.
tuberosa, Nutt.

SENECIO, Linnæus. Groundsel.
lobatus, Pers. Butter-weed. S.
aureus, Linn. Ragwort.

CIRSIUM, Tournefort. Thistle.
discolor, Spreng.
altissimum, Spreng.
Virginianum, Michx.
muticum, Michx.
pumilum, Spreng.

LAPPA, Tournefort.
major, Gært. Burdock. Introduced.

CYNTHIA, Don.
Virginica, Don.

HIERACIUM, Tournefort. Hawk-weed.
scabrum, Michx.
longipilum, Torr.
Gronovii, Linn.

NABALUS, Cassini.
albus, Hook.
virgatus, De C.
racemosus, Hook.
asper, Torr. and Gray. (Illinoensis, Michx.)
crepidineus, De C.

TROXIMON, Nutall.
cuspidatum, Pursh.

TARAXACUM, Haller.
dens-leonis, Derf. Dandelion. Introduced.

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SONCHUS, Linnæus. Sow-thistle.
oleraceus, Linn. Introduced.
asper, Vill. Introduced.

LOBELIACEÆ. THE LOBELIA FAMILY.

LOBELIA, Linnæus.
cardinalis, Linn. Cardinal-Flower.
siphilitica, Linn. Blue Lobelia.
leptostachys, A. De C.
inflata, Linn. Indian Tobacco.
spicata, Lam.

CAMPANULACEÆ. THE BELL FLOWER FAMILY.

CAMPANULA, Tournefort. Bell-flower.
aparinoides, Pursh.
Americana, Linn.
Illinœnsis, Fresen, (in De C.)

SPECULARIA, Heist.
perfoliata, A. De C.

ERICACEÆ. THE HEATH FAMILY.

GAYLUSSACIA, Humboldt, Bompland and Kunth.
resinosa, Torr. and Gray. Black Huckleberry.

VACCINIUM, Linnæus.
Pennsylvanica, Lam. Blue Huckleberry.

MONOTROPA, Linnæus.
uniflora, Linn. Indian Pipe.

AQUIFOLIACEÆ. THE HOLLY TRIBE.

ILEX, Linnæus. Holly.
decidua, Waltr.
verticillata, Gray. (Prinos verticillatos, Linn.)

EBENACEÆ. THE EBONY FAMILY.

DIOSPYROS, Linnæus

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PLANTAGINACEÆ. The Plantain Family.

Plantage, Linnæus. Plantain.
- major, Linn. Introduced.
- cordata, Lam.
- lanceolata, Linn. Ribbon Grass.
- aristata, Michx.
- Virginica, Linn.
- pusilla, Nutt. S.

PRIMULACEÆ. The Primrose Family.

Androsace, Tournefort.
- occidentalis, Pursh.

Dodecatheon, Linnæus.
- Meadia, Linn. Shooting Star.

Lysimachia, Linnæus. Loosestrife.
- quadrifolia, Linn.
- ciliata, Linn.
- lanceolata, Waltr.

Centunculus, Linnæus.
- minimus, Linn. (C., lanceolatus, Michx.)

Samolus, Linnæus.
- valerandi, Linn. Var. *Americana*. (S. floribundus, Kunth.)

LENTIBULACEÆ. Bladderwort Family.

Utricularia, Linnæus. Bladderwort.
- vulgaris, Linn.
- minor, Linn.

BIGNONIACEÆ. The Bignonia Family.

Bignonia, Tournefort.
- capreolata, Linn. S.

Tecoma, Jusseau.
- radicans, Juss. Trumpet Creeper. S.

Catalpa, Scopoli.
- bignonioides, Waltr. S. Introduced?

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OROBANCHACEÆ. The Broom-rape Family.

Phelipæa, Tournefort. Broom Rape.
Ludoviciana, Don.

Aphyllon, Mitchell.
uniflorum, Torr. and Gray.

SCROPHULARINACEÆ. The Fig-wort Family.

Verbascum, Linnæus. Mullein.
thapsus, Linn. Introduced.
blattaria, Linn. Moth mullein. Introduced.

Scrophularia, Tournefort. Fig-wort.
nodosa, Linn.

Collinsia, Nuttall.
verna, Nutt.

Chelone, Tournefort.
glabra, Linn. Snake-head.

Pentastemon, Mitchell.
pubescens, Solander.
gracilis, Nutt.
lævigatum, Willd. S.

Mimulus, Linnæus. Monkey-flower.
ringens, Linn.
alatus, Ait.

Conobea, Aublet.
multifida, Benth.

Herpestis, Gærtner.
rotundifolia, Pursh.

Gratiola, Linnæus.
Virginiana, Linn.
Missouriana, Beck.
anagalloidea, Michx.

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VERONICA, Linnæus. Speedwell.
Virginica, Linn.
anagallis, Linn.
peregrina, Linn.
arvensis, Linn. Introduced.

BUCHNERIA, Linnæus. Blue-hearts.
Americana, Linn. S.

SEYMERIA, Pursh.
macrophylla, Nutt. S.

GERARDIA, Linnæus.
purpurea, Linn.
aspera, Dougl.
tenuifolia, Vahl.
flava, Linn.
quercifolia, Pursh.
integrifolia, Gray.
pedicularia, Linn.
auriculata, Michx.

CASTILLEIA, Mutis.
coccinea, Spreng. Painted Cup.

PEDICULARIS, Tournefort. Lousewort.
Canadensis, Linn.
lanceolata, Pursh.

ACANTHACEÆ. THE ACANTHUS FAMILY.

DIANTHERA, Gronovius.
Americana, Linn. (Justicia pedunculosa, Michx.)

DIPTERACANTHUS, Nees.
ciliosus, Nees.
strepens, Nees.

VERBENACEÆ. THE VERBENA FAMILY

VERBENA, Linnæus. Vervain.
angustifolia, Michx.
hastata, Linn. Introduced.
urticifolia, Linn. Introduced.

Digitized by Google

LIPPIA, Linnæus. (Zapania, Juss.)
lanceolata, Michx.

PHRYMA, Linnæus. Lopseed.
leptostachya, Linn.

LABIATÆ. THE MINT FAMILY.

TEUCRIUM, Linnæus. Germander.
Canadense, Linn.

TRICHOSTEMA, Linnæus.
dichotoma, Linn.

ISANTHUS, Michx.
cœruleus, Michx.

MENTHA, Linnæus. Mint.
vividis, Linn. Spearmint. Introduced.
Canadensis, Linn. Wild Mint.

LYCOPUS, Linnæus.
Virginicus, Linn. Bugle-weed.
sinuatus, Ell.

PYCNANTHEMUM, Michaux.
pilosum, Nutt.
lanceolatum, Pursh.
linifolium, Pursh.

SATUREIA, Linnæus. Savory.
hortensis, Linn. Summer Savory. Introduced.

MELISSA, Linnæus.
officinalis, Linn. Balm. Introduced.

HEDEOMA, Persoon.
pulegioides, Pers. Pennyroyal.
hispida. Pursh. S.

MONARDA, Linnæus.

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LOPANTHUS, Bentham.
nepetoides, Benth.
scraphulariæfolius, Benth.

NEPETA, Linnæus.
cataria, Linn. Catnip. Introduced.
glechoma, Bentham. Introduced.

SYNANDRA, Nuttall.
grandiflora, Nutt.

PHYSOSTEGIA, Bentham.
Virginiana, Benth. Dragon-head.

BRUNELLA, Tournefort. (Prunella, Linn.)
vulgaris, Linn. Heal-all.

SCUTELLARIA, Linnæus. Scull-cap.
versicolor, Nutt.
canescens, Nutt.
serrata, Andrews.
nervosa, Pursh.
galericulata, Linn.
lateriflora, Linn.

MARRUBRIUM, Linnæus. Horehound.
vulgare, Linn. Introduced.

STACHYS, Linnæus.
aspera, Michaux.

LEONURUS, Linnæus. Mother-wort.
cardiaca, Linn. Introduced.

BORAGINACÆ. THE BORAGE FAMILY.

ONOSMODIUM, Michaux.
Virginianum, De C.
molle, Michx.
strigosum, De C.

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MERTESIA, Roth. Lungwort.
Virginica, De C. (Pulmonaria, Linn.)

MYOSOTIS, Linnæus.
verna, Nutt.

ECHINOSPERMUM, Swartz. Stick-seed.
lappula, Lehm.

CYNOGLOSSUM, Tournefort. Hound's Tongue.
officinale, Linn. Introduced.
Virginicum, Linn.
Morisoni, De C. Beggar's Lice. S.

HELIOPHYTUM, De C.
Indicum, De C. S. Introduced.

HYDROPHYLLACEÆ. THE WATER-LEAF FAMILY.

HYDROPHYLLUM, Linnæus. Water-leaf.
Virginicum, Linn.
appendiculatum, Michx.

ELLISSIA, Linnæus.
ambigua, Nutt.
nyctellea, Linn.

PHACELIA, Jussien.
Purshii, Buckley. (P. fimbriata, Ph. not of Michx.) S.

POLEMONIACEÆ. THE POLEMONIUM FAMILY.

POLEMONIUM, Tournefort.
reptans. Linn.

PHLOX, Linnæus.
acuminata, Pursh.
glaberrima, Linn.
pilosa, Linn.
divaricata, Linn.
bifida, Beck.

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CALYSTEGIA, Robert Brown. Bind-weed.
sepium, R. Brown.
spithamæa, Pursh.

CUSCUTA, Tournefort. Dodder. Love-vine.
tenuiflora, Engelm. S.
umbrosa, Beyrich.
arvensis, Beyrich. S.
chlorocarpa, Engelm. S.
Gronovii, Willd.
compacta, Juss. S.
glomerata, Choisy. S.

SOLANACEÆ. THE NIGHT-SHADE FAMILY.

SOLANUM, Linnæus.
dulcamara, Linn. Bittersweet. Introduced.
nigra, Linn. Night-shade. Introduced.
Carolinense, Linn. Horse Nettle. S.

PHYSALIS, Linnæus. Ground Cherry.
Philadelphica, Lam.
pubescens, Linn.
viscosa, Linn. (P. obscura, Michx.)
viscosa, Linn.
lanceolata, Michx.

NICANDRA, Adanson. Apple of Peru.
physaloides, Gærtn. Introduced.

DATURA, Linnæus. Jamestown Weed.
stramonium, Linn. Introduced.

GENTIANACEÆ. THE GENTIAN FAMILY.

SABBATIA, Adanson.
angularis, Pursh.

FRASERA, Waltr. Columbo.
Carolinensis, Waltr. S.

GENTIANA, Linnæus.

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GENTIANA, Andrewsii, Griseb.
rubricaulis, Keating.

MENYANTHUS, Tournefort.
trifoleata, Linn. Buck Bean.

APOCYNACEÆ. THE DOGBANE FAMILY.

AMSONIA, Waltr.
Tabernæmontana, Waltr. (A. latifolia, Michx.)

APOCYNUM, Tournefort. Dogbane.
androsæmifolium, Linn.
cannabinum, Linn. Indian Hemp.

ASCLEPIADACEÆ. THE MILKWEED FAMILY.

ASCLEPIAS, Linnæus.
cornuti, Decaisne. Milkweed.
Sullivantii, Engelm. S.
purpurascens, Linn.
variegata, Linn.
Nuttalliana, Torrey.
Meadii, Torrey.
quadifolia, Jacq.
obtusifolia, Michx.
incarnata, Linn.
tuberosa, Linn. Butterfly Weed.
verticillata, Linn.

ACERATES, Elliott.
viridiflora, Ell.
longifolia, Ell.

ENSLENIA, Nuttall.
albida, Nutt.

OLEACEÆ. THE OLIVE FAMILY.

[illegible] Tournefort. Ash

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ARISTOLOCHIACEÆ. The Birthwort Family.

Asarum, Tournefort.

Canadense, Linn. Colt's Foot.

Aristolochia, Tournefort.

serpentaria, Linn. Virginia Snake Root. S.
tomentosa, Sims. S.

NYCTAGINACEÆ. The Four O'Clock Family.

Oxybaphus, Vahl.

nyctagineus, Sweet. S.

PHYTOLACCACEÆ. The Pokeweed Family.

Phytolacca, Tournefort.

decandra, Linn. Poke-berry.

CHENOPODIACEÆ. The Goosefoot Family.

Cycloloma, Moquin.

plataphylla, Moq. (Salsola platyphylla, Michx.)

Chenopodium, Linnæus. Goosefoot.

hybridum, Linn. Introduced.
muriale, Linn. Introduced.
album, Linn. Pig-weed. Introduced.

Ambrina, Spach. Wormseed.

botrys, Moq. Jerusalem Oak. Introduced.
ambrosoides, Spach. Mexican Tea. Introduced.
anthelminticum, Spach. Wormseed. Introduced.

Blitum, Tournefort.

capitatum, Linn. Indian Strawberry.

AMARANTACEÆ. The Amaranth Family.

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ACNIDA, Linn. Water Hemp.
cannabina, Linn.

FRŒLICHIA, Mœnch. (Oplotheca, Nutt.)
Floridana, Moquin.

POLYGONACEÆ. THE BUCKWHEAT FAMILY.

POLYGONUM, Linnæus. Knotweed.
anphibium, Linn.
lapathifolium, Linn.
Pennsylvanicum, Linn.
Persicaria, Linn. Lady's Thumb. Introduced.
hydropiper, Linn. Smartweed.
acre, H. B. K. (P. punctatum, Ell.) Wild Smartweed.
hydropiperoides, Michx.
aviculare, Linn. Knot-grass.
erectum, Linn.
ramosissimum, Michx.
tenere, Michx.
Virginianum, Linn.
sagittatum, Linn.
dumetorum, Linn.

RUMEX, Linnæus. Dock.
verticillatus, Linn. Swamp Dock.
altissimus, Wood. Tall Dock.
hydrolapathum, Hudson. (R. Aquaticus, Smith.)
obtusifolius, Linn. Bitter Dock. Introduced.
crispus, Linn. Curled Dock. Introduced.
acetosellus, Linn. Sorrel.

LAURACEÆ. THE LAUREL FAMILY.

SASSAFRAS, Nees. Sassafras.
officinale, Nees. (Laurus Sassafras, Linn.)

BENZOIN, Nees,
odoriferum, Nees. Spice-bush.

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LORANTHACEÆ. The Mistletoe Family.

Phoradendron, Nuttall.
flavescens, Nutt. American Mistletoe. S.

SAURURACEÆ. The Lizard's Tail Family.

Saururus, Linnæus.
cernuus, Linn. Lizard's Tail. S.

CERATOPHYLLACEÆ. The Honewort Family.

Ceratophyllum, Linnæus.
demersum, Linn.

EUPHORBIACEÆ. The Spurge Family.

Euphorbia, Linnæus.
Geyeri, Engelm.
herniarioides, Nutt. S.
humistrata, Engelm. S.
maculata, Linn.
hypericifolia, Linn.
dentata, Michx. S.
cyathophora, Jacq. S.
corollata, Linn.
obtusata, Pursh. S.

Acalypha, Linnæus.
Virginica, Linn.
gracilens, Gray.
Caroliniana, Waltr.

Croton, Linnæus.
capitatum, Michx.
glandulorum, Linn.

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URTICACEÆ. The Nettle Family.

§ 1. *Ulmacee. The Elm Tribe.*

Ulmus, Linnæus. Elm.

fulva, Michx. Slippery Elm.
Americana, Linn. Elm.

Celtis, Tournefort. Hackberry.

occidentalis, Linn.
crassifolia, Lam. S.

§ 2. *Atrocarpeæ. The Bread-Fruit Tribe.*

Morus, Tournefort.

rubra, Linn. Red Mulberry. S.
alba, Linn. White Mulberry. Introduced.

Borya, Willdenow.

ligustrina, Willd.

§ 3. *Urticeæ. The Nettle Tribe.*

Urtica, Tournefort. Nettle.

gracilis, Ait.

Laportea, Gaudich.

Canadensis, Gaud. (Urtica Canadensis, Linn.)

Pilea, Lindley. Richweed.

pumila, Lindl.

Bœhmeria, Jacq.

cylindrica, Willd. S.

Parietaria, Tournefort.

Pennsylvanica, Muhl. Pillitory.

§ 4. *Cannabineæ. The Hemp Tribe.*

Cannabis, Tournefort. Hemp.

sativa, Linn. Introduced.

Humulus, Linnæus. Hop.

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JUGLANDACEÆ. The Walnut Family.

Juglans, Linnæus. Walnut.

cinerea, Linn. Butternut.
nigra, Linn. Black Walnut.

Carya, Nuttall. Hickory.

alba, Nutt. Shag-bark Hickory.
sulcata, Nutt. Thick Shell-bark Hickory.
olivæformis, Nutt. Pecan-nut. S.
tomentosa, Nutt. Mocker-nut.
glabra, Torr. Pig-nut hickory.
amara, Nutt. Bitter-nut hickory.

CUPULIFERÆ. The Cup-bearing Family.

Quercus, Linnæus. Oak.

macrocarpa, Michx. Bur-oak.
obtusiloba, Michx. Post-oak.
alba, Linn. White-oak.
montana, Willd. Rock Chestnut-oak.
bicolor, Willd. Swamp White-oak.
castanea, Willd. Chestnut-oak.
imbricaria, Michx. Laurel Oak.
nigra, Linn. Black-Jack Oak.
Leana, Nutt. Lea's Oak (probably a hybrid.)
tinctoria, Bartram. Black Oak.
coccinea, Wang. Scarlet Oak.
rubra, Linn. Red Oak.
palustris, Du Roy. Pin Oak.

Fagus, Tournefort. Beech.

ferruginea, Ait.

Corylus, Tournefort. Hazlenut.

Americana, Waltr.

Carpinus, Linnæus.

Americana, Michx. Water Beech.

Ostrya, Micheli.

Virginica, Willd. Iron-wood.

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SALICACEÆ. The Willow Family.

Salix, Tournefort. Willow.

tristis, Ait. Gray Willow.
humilis, Marshall. (S. Muhlenbergiana, Barratt.)
eriocephala, Michx.
sericea, Marshall. (S. Grisea, Willd.)
fluviatilis, Nutt. (Near S. longifolia, Muhl.)

Populus, Tournefort. Poplar.

tremuloides, Michx. Aspen.
heterophylla, Linn. Downy-leaved Poplar.
angulata, Ait. Cotton-wood.
candicans, Ait. Balm of Gilead.

CONIFERÆ. The Cone-bearing Family.

Thuja, Tournefort.

occidentalis, Linn. Arbor Vitæ.

Taxodium, Richard.

distichum, Rich. Cypress. S.

Juniperus, Linn.

Virginiana, Linn. Red Cedar.

ARACEÆ. The Arum Family.

Arisæma, Martius. Indian Turnip.

tryphyllum, Torr. Indian Turnip.
dracontium, Schott. Dragon-root.

Acorus, Linn.

calamus, Linn. Sweet Flag.

TYPHACEÆ. The Cat-tail Family.

Typha, Tournefort.

latifolia, Linn. Cat-tail.

Sparganium, Tournefort.

ramosum, Hudson.

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LEMNA, minor, Linn.
polyrrhiza, Linn.

NAIADACEÆ. THE PONDWEED FAMILY.

POTAMOGETON, Tournefort.
hybridus, Michx. S.
pusillus, Linn. (P. compressus, Smith.) S.
panciflorus, Pursh. (P. gramineus, Michx.)
lucens, Linn.
natans, Linn.
heterophyllus, Schreber.

ALISMACEÆ. THE WATER-PLANTAIN FAMILY.

ALISMA, Linnæus.
plantago, Linn.

ECHINODORUS, Richard.
parvulus, Engelm.
rostratus, Engelm. (Alisma rostrata, Nutt.)
radicans, Engelm. (Alisma radicans, Nutt.)

SAGITTARIA, Linnæus. Arrow-head.
variabilis, Engelm.
heterophylla, Pursh. S.
simplex, Pursh. S.

HYDROCHARIDACEÆ. THE FROG'S-BIT FAMILY.

ANACHARIS, Richard.
Canadensis, Planchon. (Udora Canadensis, Nutt.)

VALISNERIA, Micheli.
spiralis, Linn. Eel-grass.

ORCHIDACEÆ. THE ORCHIS FAMILY.

ORCHIS, Linnæus.
spectabilis, Linn. Showy Orchis.

PLATANTHERA, Richard.
bracteata, Torr.

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SPIRANTHES, gracilis, Bigelow.
cernua, Richard.

POGONIA, Jussieu.
pendula, Lindl. (Triphora, Nutt.)

CALOPOGON, R. Brown.
pulchellus, R. Brown.

MICROSTYLIS, Nuttall.
ophioglossoides, Nutt. Adder's Tongue.

LIPARIS, Richard.
liliifolia, Richard.

CORALLORHIZA, Haller. Coral-root.
multiflora, Nutt.

APLECTRUM, Nuttall.
hyemale, Nutt. Putty-root.

CYPRIPEDIUM, Linnæus. Lady's Slipper.
pubescens, Willd. Yellow Lady's Slipper.
parviflorum, Salisb.
candidum, Muhl. White Lady's Slipper.
spectabile, Swartz. Moccasin Flower.

AMARYLLIDACEÆ. THE AMARYLLIS FAMILY.

AGAVE, Linnæus. Aloe.
Virginica, Linn. S.

HYPOXYS, Linnæus.
erecta, Linn. Star-grass.

IRIDACEÆ. THE IRIS FAMILY.

IRIS, Linnæus.
versicolor, Linn. Blue Flag.

SISYRINCHIUM, Linnæus.

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SMILACEÆ. The Smilax Family.

Smilax, Tournefort. Greenbriar.

rotundifolia, Linn.
quadrangularis, Muhl.
herbacea, Linn.

Trillium, Linnæus.

sessile, Linn.
recurvatum, Beck.
cernuum, Linn.
erectum, Linn.
grandiflorum, Salisb.

LILIACEÆ. The Lily Family.

Asparagus, Linnæus.

officinalis, Linn. Introduced.

Polygonatum, Tournefort.

biflorum, Ell. Solomon's Seal.

Smilacina, Desfontaines.

racemosa. Desf.
stellata, Desf.

Scilla, Linnæus.

Fraseri, Gray. (Phalangium esculentum, Nutt.)

Allium, Linn. Garlic.

tricoccum, Ait. Leek.
cernuum, Roth. Wild Onion.
stellatum, Nutt.
Canadense, Kalm.
striatum, Jacq. S.

Lilium, Linnæus. Lily.

Philadelphicum, Linn. Wild Lily.
Canadense, Linn. Nodding Lily.

Erythronium, Linnæus. Dog's-tooth Violet.

Americanum, Smith.
albidum, Nutt.

MELANTHACEÆ. The Colchicum Family.

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Uvularia, Linnæus.

UVULARIA, grandiflora, Smith.
perfoliata, Linn.

MELANTHIUM, Gronovius.
Virginicum, Linn.

VERATRUM, Tournefort.
Woodii, Robbins.

JUNCACEÆ. THE RUSH FAMILY.

LUZULA, De Candolle.
campestris, De C.

JUNCUS, Linnæus. Rush.
scirpoides, Lam.
acuminatus, Michx.
marginatus, Rostk.
tenuis, Willd.
bufonius, Linn.

PONTEDERIACEÆ. THE PICKEREL-WEED FAMILY.

PONTEDERIA, Linnæus.
cordata, Linn. Pickerel-weed.

HETERANTHERA, Ruiz. and Pav.
limosa, Vahl. (Leptanthus ovalis, Michx.)

SCHOLLERA, Schreber.
graminea, Willd.

COMMELYNACEÆ. THE SPIDERWORT FAMILY.

COMMELYNA, Dillenius. Day-flower.
erecta, Linn.
Virginica, Linn. (C. angustifolia, Michx.)
agraria, Kunth. S.

TRADESCANTIA, Linnæus. Spiderwort.
Virginica, Linn.
pilosa, Lehm.

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CYPERUS, Michauxianus, Schultes.
Engelmanni, Steud.
strigosus, Linn.
inflexus, Muhl.
acuminatus, Torr.
phymatodes, Muhl. (C. repens, Ell.)
Schweinitzii, Torr.
filiculmis, Vahl.
ovularis, Torr. S.

KYLLINGIA, Linnæus.
pumila, Michx. S.

DULICHIUM, Richard.
spathaceum, Pers.

HEMICARPHA, Nees.
subsquarrosa, Nees.

ELEOCHARIS, R. Brown.
quadrangulata, R. Brown. S.
obtusa, Schultes.
palustris, R. Brown.
tenuis, Schultes.
compressa, Sullivant. S.
acicularis, R. Brown.

SCIRPUS, Linnæus.
pungens, Vahl.
lacustris, Linn.
debilis, Pursh.
fluviatilis, Gray.
atrovirens, Muhl.
polyphyllus, Vahl.
lineatus, Michx.

ERIOPHORUM, Linnæus. Cotton-grass.
polystachyon, Linn.
gracile, Koch.

FIMBRISTYLIS, Vahl.
spadicea, Vahl.

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SCLERIA, Linnæus. Nut-rush.

triglomerata, Michx.

CAREX, Linnæus. Sedge-grass. Marsh Hay.

polytrichoides. Muhl.
Willdenovii, Schk.
Steudelii, Kunth.
siccata, Dewey.
Sartwellii, Dewey.
intermedia, Goodenow.
teretiuscula, Goodenow.
decomposita, Muhl.
vulpinoidea, Michx.
crus-corvi, Shuttleworth.
stipata, Muhl.
vulpina, Linn.
sparganoides, Muhl.
cephaloidea, Dewey.
cephalophora, Muhl.
Muhlenbergii, Schk.
rosea, Schk.
stellulata, Good.
arida, Schw. and Torr.
scoparia, Schk.
lagopodioides, Schk.
festucacea, Schk.
mirabilis, Dewey.
straminea, Schk.
vulgaris, Fries.
aperta, Boott.
stricta, Lam.
aquatalis, Wahl.
crinita, Lam.
Buxbaumii, [illegible]hl.
Shortiana, [illegible]
Meadii, Dewey.
tetanica, Schk.
granularis, [illegible]
canilla, Schk.
[illegible]l.

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CAREX, virescens, Muhl.
triceps, Michx.
plantaginea, Lam.
anceps, Willd.
blanda, Dewey.
oligocarpa, Schk.
umbellata, Schk.
Pennsylvanica, Lam.
varia, Muhl.
Richardsonii. R. Brown.
pubescens, Muhl.
lanuginosa, Michx.
lacustris, Willd.
trichocarpa, Muhl.
tentaculata, Muhl.
intumescens, Rudge.
Grayii, Carey.
lupulina, Muhl.
squarrosa, Linn.
monile, Tuckerman.
ampullacea, Good.
Tuckermanii, Boott.
longirostris, Torr.

GRAMINEÆ. THE GRASS FAMILY.

LEERSIA, Solander.
oryzoides, Swartz. Rice Grass.
Virginica, Willd. White Grass.
lenticularis, Michx. Fly-catch Grass.

ZIZANIA, Gronorius.
aquatica, Linn. Wild Rice.

ALOPECURUS, Linnæus. Fox-tail Grass.
pratensis, Linn. Meadow Fox-tail Grass. Introduced.

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Sporobolus, R. Brown.

heterolepis, Gray.

cryptandrus, Gray.

Agrostis, Linn. Bent-grass.

scabra, Willd. Hair-grass.

vulgaris, With. Red-top.

alba, Linn. White-top.

Cinna, Linn.

arundinacea, Linn.

Muhlenbergia, Schreber.

sobolifera, Gray.

glomerata, Trin.

Mexicana, Trin.

sylvatica, Torrey and Gray.

Willdenowii, Trin.

diffusa, Willd. Nimble Will.

Brachyelytrum, Beauvois.

aristatum, Beauv. (Muhlenbergia erecta, Schreb.)

Calamagrostis, Adanson.

Canadensis, Beauv. Blue-joint Grass.

coarctata, Torr. and Gray.

Oryzopsis, Michaux. Mountain Rice.

Canadensis, Torr. (Stipa juncea, Michx.)

Stipa, Linnæus. Feather Grass.

avenacea, Linn. Black Oat-grass.

spartea, Trin. (not Hook.) Porcupine Grass.

Aristida, Linnæus.

dichotoma, Michx. Poverty-grass.

ramosissima, Engelman.

gracilis, Ell.

stricta, Michx.

purpurascens, Poir.

Geyeriana, Trin.*

oligantha, Michx.

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CHONDROSIUM, Desvaux.

hirtum, H. B. K. (Atheropogon papillosus, Englm.)

ATHEROPOGON, Muhlenberg.

apludoides, Muhl. (Boutelona racemosa, Lagasca.)

DACTYLOCTENIUM, Willdenow.

Ægypticum, Willd. Introduced.

ELEUSINE, Gærtner.

Indica, Gærtn. Wire-grass. Introduced.

LEPTOCHLOA, Beauvois.

mucronata, Kunth.
fascicularis, Gray.

TRICUSPIS, Beauvois.

seslerioides, Torr. Tall Red-top.

DIAPSHENA, Rafinesque.

Americana, Beauv. (Festuca diandra, Michx.)

DACTYLIS, Linnæus.

glomerata, Linn. Orchard Grass. Introduced.

KŒLERIA, Persoon.

cristata, Pers.

EATONIA, Rafinesque. (Reboulea, Kunth.)

obtusata, Gray.
Pennsylvanica, Gray.

MELICA, Linnæus. Melic-grass.

mutica, Waltr. (M. speciosa, Muhl.)

GLYCERIA, R. Brown. Manna Grass.

Canadensis, Trin. Rattlesnake Grass.
nervata, Trin.
fluitans, R. Brown.

POA, Linnæus. Meadow Grass.

annua, Linn. Low Spear Grass.
brevifolia, Muhl. (P. pungens, Nutt.)
sylvestris, Gray.
nemoralis, Linn.

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ERAGROSTIS, Beauvois.
reptans, Nees. (Poa reptans, Michx.)
megastachya, Link. Introduced.
pilosa, Beauv.
Frankii, Meyer. (E. erythrogona, Nees.)
tenuis, Gray. (Po tenuis, Ell. P. capillaris, Michx.)
pectinacea, Gray. (P. hirsuta.)
spectabilis, Gray.

FESTUCA, Linnæus. Fescue-grass.
tenella, Willd.
nutans, Willd.

BROMUS, Linnæus. Brome-grass.
secalinus, Linn. Chess. Introduced.
Kalmii, Gray. Wild chess.
ciliatus, Linn.

UNIOLA, Linnæus.
latifolia, Michx.

PHRAGMITES, Trinius.
communis, Trin. Reed.

ARUNDINARIA, Michaux.
macrosperma, Michx. Cane. S.

LEPTURUS, Robert Brown.
paniculatus, Nutt.

HORDEUM, Linnæus. Barley.
jubatum, Linn. Squirrel Tail Grass.
pusillum, Nutt.

ELYMUS, Linnæus. Lyme-grass.
Virginicus, Linn.
Canadensis, Linn.
striatus, Willd.
villosus, Muhl.
propinquus, Fresen.

GYMNOSTICHUM, Schreber.

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TRISETUM, Persoon.

palustre, Torr.

PHALARIS, Linnæus. Canary Grass.

arundinacea, Linn.

PASPALUM, Linnæus.

fluitans, Kunth. S.
setaceum, Michx. S.
læve, Michx.

PANICUM, Linnæus. Panic-grass.

filiforme, Linn.
glabrum, Gaudin. Introduced.
sanguinale, Linn. Crab-grass. Introduced.
agrostoides, Spreng.
proliferum, Lam.
capillare, Linn.
autumnale, Bosc.
virgatum, Linn.
latifolium, Linn.
clandestinum, Linn.
microscarpon, Muhl.
xanthophysum, Gray.
dichotomum, Linn.
depauperatum, Muhl.
crus-galli, Linn. Barn-yard Grass. Introduced.
hispidum, Muhl.
scoparium, Michx.

SETARIA, Beauvois.

glauca, Beauv. Introduced.

CENCHRUS, Linnæus. Bur-grass.

tribuloides, Linn.

TRIPSACUM, Linnæus.

dactyloides, Linn. Gama Grass.

ERIANTHUS, Michaux.

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ANDROPOGON, scoparius, Michx.
Virginicus, Linn.

SORGHUM, Persoon.
nutans, Gray.

EQUISETACEÆ. THE HORSETAIL FAMILY.

EQUISETUM, Linnæus. Horsetail.
arvense, Linn.
lævigatum, Braun.
robustum, Braun. S.
hyemale, Linn. Scouring Rush.

FELICES. THE FERNS.

POLYPODIUM, Linnæus.
hexagonopterum, Michx.
dryopteris, Linn.
incanum, Willd.

ALLOSORUS, Bernhardi. Rock-brake.
atropurpureus, Gray.

PTERIS, Linnæus. Brake.
aquilina, Linn.

ADIANTUM, Linn. Maidenhair.
pedatum, Linn.

CHEILANTHES, Swartz. Lip Fern.
vestita, Willd.

COMPLOSORUS, Link.
rhizophyllus, Link. Walking-leaf.

ASPLENIUM, Linnæus.
trichomanes, Linn.
thelypteroides, Michx.

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ONOCLEA, Linnæus.

sensibilis, Linn. Sensitive Fern.

OSMUNDA, Linnæus.

spectabilis, Willd.

Claytoniana, Linn.

BOTRYCHIUM, Swartz.

lunarioides, Swartz. Moonwort.

Virginicum, Swartz.

HYDROPTEROIDES. THE WATER-FERNS.

AZOLLA, Lamarck.

Caroliniana, Willd.

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THE NATIVE, NATURALIZED AND CULTIVATED GRASSES OF THE STATE OF ILLINOIS.

By I. A. Lapham, of Milwaukee, Wis.

It is proposed in the following pages to present an account of those plants growing in Illinois which belong to the natural order of grasses, or *Graminæ* as they are called in the systematic works of botanists. This great family includes all those species that have certain characters, especially the flowers and fruit in common, and includes not only the grasses such as are cultivated for pasturage and for hay, but also wheat, oats, corn, rice, the sugar-cane, and many other important products of the vegetable kingdom. These constitute a very natural assemblage of plants so nearly allied that the slightest observation suffices to show their affinity. When a definite idea is once formed of the true type of the order, there is no difficulty in recognizing the different species. There have been no questions among botanists about the classification of the graminæ. Their family resemblance led the first observers to arrange them into an order by themselves, where they remain. Additions have been made to the family, from time to time, by the discovery of new species, but these find their place readily in the system, without requiring any considerable modification of the general characteristics by which grasses are universally known and distinguished from other plants.

But farmers will tell us that clover and some other plants are cultivated as grass, and should be included in the same family. This would be adopting a wrong basis of classification in natural

elsewhere, and from an examination of the collection of plants exhibited at the state fair, at Chicago, in 1855. I have been able to make a very complete list of the grasses found within her limits. It will be seen that there are 105 native species, 11 introduced species, and 12 that are known only as they are cultivated. This is a larger number, in proportion to the whole number of flowering plants in the state, (being about one-tenth) than is usual in the same climate.

There are but few grasses peculiar to Illinois; nor could we expect to find such when we reflect that her prairies are only the borders of the vast prairie country lying at the west and southwest. The species found in the wooded districts are found again in similar localities in the adjoining states. The Great Father of Rivers, the Mississippi, which runs along the whole extent of the state, comes down from the far north and runs on to the sunny south. The species along the margin of that great stream are not confined to narrow limits of distribution. Again, Illinois borders on the "Great Lakes," and the species found there are common to other portions of these great inland seas.

The wild grasses of the prairies, though in some respects inferior to those usually cultivated, have been found to be very important in sustaining the early settlements; and it is in no small degree to these humble species that the state is indebted for her present condition of wealth and prosperity. If no cattle could have been introduced until the farmer had prepared, by cultivation, his pasture and his meadow, Illinois would have been to-day very far behind what we see her. These native grasses are, therefore, entitled to their share of attention, and I have not hesitated to include them all in the descriptions that follow. They are deserving of the careful study and investigation of the botanists and the farmers; so that we may ascertain with certainty what are the merits of each. Possibly some may be found better adapted to the peculiarities of soil and climate than those we have introduced and cultivate.

But it is not to any one species of grass that we should look for the support of our stock. On the native prairies we find many species intermingled, each doing its part; one preferring low, wet situations, others grow only on dry ground, some prefer the

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maturity early in the season, others late in autumn; some are best suited for preservation in the form of hay, others are only suited for pasturage. This natural combination of different species on the prairies, each having its own peculiar habits and qualities, suggests to us the propriety of cultivating a number of different kinds of grass in our artificial pastures and meadows, and of not confining ourselves to *timothy* and a few other favorite species. A judicious combination should be made, having reference to the qualities of each, and the purposes for which they are designed by the cultivator.

English farmers understand this matter; and their writers inform us that twenty or more species of grass can be found on a single square foot of a rich, ancient pasture in that country. From the beginning of spring till winter there is no month that is not the peculiar season in which one or more of these grasses attain the greatest degree of perfection. Hence, the comparatively never-failing supply of nutritive herbage obtained from natural pastures, which it is vain to look for in those artificially formed with one or two grasses only.

Whether the culture of grass and the rearing of stock or the culture of grains is the most important and will yield the greatest return for the capital and labor employed at any given locality is quite an important inquiry Usually, upon the first settlement of a country, or the first emergence of a people from the barbarous state the culture of grains predominate; the cattle being allowed to shift for themselves, and rely on the natural grasses and herbage. The culture of grasses, as food for stock, is, therefore, an indication of a more advanced state of the agricultural art In our own country the two kinds are combined in the same townships, or even on the same farms, but there is a decided tendency towards the increase of the first at the expense of the second kind of husbandry. Doubtless this mixed culture is best for western farmers, but yet there must be a certain relative proportion that one should bear to the other, and it should be our aim to ascertain what this proportion is, and to conform to it as near as circumstances will allow. The question resolves itself into this—whether the production of grain or of meat is the most profitable. In Holland we are told that almost the entire surface is devoted to pasture and hay, and in that country this peculiar kind of agricultu[illegible]

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than in any other country. The relative prop
and meadow lands, as compared with the whol
ted in different countries, is stated at about one-s
one-fourth in Germany and three-fourths in G
our own country the statistics collected and publ
ble us to determine this proportion. The culture
ture and hay, requires less manual labor and l
chinery than that of grains; and there is, moreo
to failure of crops. Most of the diseases by whi
ed are in the heads, and the weevil, or other in
stroy not the culms and leaves, but the grain its
are cropped or cut before they attain this degree

As a correct knowledge of the different speci
portant, not only to the farmer, but to many ot
citizens, I have deemed it proper to give so muc
character of each species as seemed to be necess
them one from another. In this part of the wor
indebted to the valuable Manual of the Botany of t
ted States, by Dr. Asa Gray, who kindly allowed
use of the very accurate descriptions of that worl
are made directly from nature; they serve to ill
of grasses in general, and represent nearly ever
ly) found in the state of Illinois.

Such is the minuteness and apparent obscuri
parts or organs from which the distinctive char
drawn, that the study of the Gramineæ is one of
in the whole science of botany, especially to th
beginning that very interesting and fascinating
the aid of a good common magnifying glass, and
tion of the flowers, taken at the right season of t
may be able to decide upon the name of the co
grass with considerable certainty. With this
once refer to whatever has been written in rega
on agricultural and botanical subjects. The tec
ployed in describing grasses, as well as other p
history, are mostly included in the later editi
American Dictionary: so that the obstacles to th

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known. As instances of the different applications of names, it may be mentioned that the "Herds grass" of Pennsylvania is not the grass known by that name in New York; and that the "Blue grass" of Kentucky is quite different from the Blue grass of England.

If we put into the fire the products of grasses—as hay, grain, chaff, straw, &c.—a large proportion will be consumed, or converted into gaseous substances, that escape into the atmosphere. This is called the *organic* portion of plants, while what remains, (the ash,) is called the *inorganic* portion. The proportion of ash varies from one to twelve per cent. The elementary substances detected in the Gramineæ are fourteen, of which about ten are always present, and, therefore, may be deemed essential elements of all species of this family. Of twenty different species analyzed, it was found that all contained oxygen, hydrogen, carbon, chlorine, phosphorus, sulphur, calcium, magnesium, silicum and potassium; all but one contained sodium; six contained iron, and one manganese. Nitrogen is also a constituent of the organic portions. The organic matter, consisting of carbon, oxygen, hydrogen and nitrogen, is drawn from the atmosphere, which is everywhere present; the inorganic matter is drawn, in a fluid state, from the soil, by the roots, with the help of numerous very minute hairs. (See plate 2, fig. 13, g.) But every soil does not necessarily contain all these essential elements, or they may exist in certain soils in such small proportion as to be soon exhausted. Hence we see the necessity of a change of crops, or of supplying to the soil such of the above named elements as may be wanting. The nature of the plant is such that it must have an adequate supply of its peculiar food, as much so as a horse, an ox or a pig. This shows, also, the importance of exact chemical analyses of plants, in different stages of growth, and, also, of the soils on which they are expected to grow. The deficiencies must be supplied if we wish to produce healthy and vigorous plants. By aid of these analyses we may calculate the amount of each element annually abstracted from the soil, and, consequently, the amount that should be annually restored in the shape of manures, or by other means. By neglecting to make this annual restoration to the soil of the exhausted elements, we reduce the value of lands, and they would soon be "worn out," and become incapable of yielding their accustomed returns.

The ashes of different portions of different species of gramineæ have been found to contain water, (oxygen and hydrogen,) the per-oxide of iron, the per-oxide of manganese, the oxide of potassium (potash,) oxide of sodium (soda;) phosphoric acid, sulphuric acid, carbonic acid and silicic acid; carbonate of lime, chloride of potassium, chloride of sodium, and the phosphates of lime, magnesia and iron. Manures, therefore, containing one or more of these substances, are such as are required to restore lands exhausted by crops of grass or grain.

Besides the compounds just enumerated, which are called chemical compounds, there are others which, being peculiar to the vegetable kingdom, are called vegetable compounds or products. They all belong to the organic constituents, consisting mostly of two or more of the organic elements of carbon, hydrogen, oxygen and nitrogen. These are, in the Gramineæ—

Cellulose, forming the sides of the minute cells.

Starch (fecula, or farina,) which is compared to the fat of animals.

Dextrine (gum,) composed of softened starch.

Sugar, abundant in the cane, sorghum, Indian corn, &c.

Glucose, or grape sugar.

Lignine, or woody matter.

Fixed-oil, found in certain grains, &c.

Wax, a product of the sugar cane, &c.

Chlorophyl, the green coloring matter of leaves, &c.

Vegetable acids.

Gluten, which is a mixture of the following four: *fibrine*, which forms muscles of animals; *albumen*, the same as in animals; *caseine*, the same as the curd of milk; and *glutine*, that forms the sinews of animals.

Proteine.

Protoplasm.

Zeine, a product of Indian corn, (Zea.)

These several compounds are, during the growth of the plant, being constantly formed and changed from one to another. Thus, it has recently been stated that the starch of the grain of Indian corn is changed by germination into sugar (dextrine)

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The VEGETABLE KINGDOM is found to consist of two grand divisions: one called *Phænogamia*, having flowers with at least the essential organs of stamens and pistils, and producing seed which contains an embryo; the other called CRYPTOGAMIA, destitute of flowers, and with seeds (or spores) containing no embryo.

The Phænogamous or flowering plants are again divided naturally into two classes; one with stems, formed of bark, wood and pith, the wood increasing from year to year by layers formed on the exterior, and hence called EXOGENS or outside growers; the leaves are net-veined, the embryo with two or more opposite cotyledons or lobes. The other class of flowering plants, the one to which the grasses belong, have stems not composed of regular layers. The growth is from the centre, hence called ENDOGENS or inside growers; the leaves are mostly furnished with parallel veins, and sheathing at the base, not toothed or notched; the embryo with a single cotyledon.

The great natural order of grasses (GRAMINEÆ) are those Endogenous Phænogams, having the stems (*culms*) mostly hollow, closed at the joints, the leaves alternate, apparently sessile, their sheaths clasping the stem and slit open on the side opposite the blade down to the next joint; the flowers with glumes or bracts, arranged in little groups or spikelets. By these few and simple characters any true grass may at once be known.

The Gramineæ are chiefly herbaceous or do not become woody and keep alive from year to year, though bundles of woody fibers are found in the culms. (See plate 1, fig. 4, d, e, f.) These bundles serve to facilitate the circulation of the sap, and to give strength to the culm. Only one species is found in Illinois having a true woody structure, the cane, (*Arundinaria macr sperma*,) where these bundles are so numerous, and form so large a proportion of the culm, as to give it the hardness and durability of wood. The roots of grasses are fibrous; but these fibres do not always originate at the base of the culm, but are placed at the joints or nodes of an underground stem (called a *rhizoma*)

in their cultivation. Strictly, both are annual—the only difference being that one completes its course within the same year, while the other occupies a portion of two—the autumn of one and the spring and summer of the next. Hence, it is not surprising that some species, like wheat, may be both annual and biennial. Of perennial grasses or those that continue more than one year there are but few that do not annually die down to the root, which alone retains the living principle during the winter. These roots, which are in reality underground portions of the culm, serve as storehouses to contain the food which is requisite for the growth of the plant the next year. In the management of pasture and meadow lands care should be taken to preserve these storehouses, and also to avoid any injury to the plants that would prevent the accumulation of nutricious matters iu them.

The leaves of grasses are studded with minute openings or breathing pores (stomata,) as shown plate 4, fig. 4, f. They are usually, long and slender and are based upon sheaths that surround the culms. The sheaths originate at the nodes, and are often extended above the leaves into a kind a margin called the *ligule*. The spikelets have one, two, or more flowers, and are arranged at the top of the culm or branches in the form of panicles or spikes. The lower or outer leaflets of the flowers are called *glumes*, the upper or inner are called *paleæ*. The stamens, though almost always three, vary in number from one to six. The styles are two, and plumose. The grain or seed is of the kind called *caryopsis*, or having a thin membranaceous covering adhering to the surface so as not to be separated. It is free or sometimes united with the paleæ. The embryo is situated at the base of the grain and on the outside of the albumen.

The durability of the caryopsis is quite remarkable; and is one of the wonderful provisions for the preservation of plants. Had the wheat crop been at any time entirely destroyed throughout the world so that no seed was produced for the next year, this invaluable grain would have been restored to us from seeds preserved for more than three thousand years in the folds of an Egyptian mummy! That seeds may be buried in the ground and remain for a number of years, until some favorable conditions cause them

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Several species of Gramineæ are *monœcious*, or have the stamens and pistils on separate parts of the plant, as in Indian corn, wild rice, &c. The pollen grains of the former, which grow on the tassel at the top of the culm, are heavier than the air, so that they fall upon the stigmas (the silk) below; but those of the wild rice are produced below, and being lighter than the air, rise like so many little balloons to the stigmas, which are turned downwards as if purposely to catch them as they ascend. These pollen grains are nearly globular and so small that six hundred of them, placed side by side, would only extend one inch, and a cubic inch would therefore contain no less than sixteen millions of them. They are observed to have a small circular cavity or opening through the outer surface. Each grain is found to be a sack with two coats or coverings, within which is contained a transparent fluid filled with particles still more minute, and supposed to be grains of starch. When moisture is applied to the pollen grains the inner coat expands and is protruded through the opening or weak place in the outer coat and the contents are discharged with an explosive force. The minute grains thus liberated will be seen to have a constant motion, resembling in some degree the motion of living animals.

The artificial hybridizing of plants consists in applying the pollen grains of one species or variety to the stigmas of another, and carefully excluding all contact with the pollen of the plant experimented upon. In the case of Indian corn this might easily be done by planting rows of two kinds and carefully destroying the tassels of one of the kinds before they are fully matured.

TRIBE I. ORYZEÆ.

Spikelets one-flowered, sometimes monœcious, in branched panicles; the glumes are often wanting or obsolete; the inner palea three-nerved; scales two; stamens one to six.

GENUS I. LEERSIA. *Solander.*

Spikelets one-flowered, compressed in one-sided racemose panicles, jointed with the short pedicels; glumes none; paleæ chartaceous, compressed, carinate, without awns, bristle-ciliate on the keels, nearly equal in length, but the lower one broader, carinate,

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ing. Perennial swamp plants; culms and sheaths retrorsely scabrous.

1. LEERSIA ORYZOIDES, *Swartz.*

SYNONYMA.—Phalaris oryzoides, Linnæus; Asprella oryzoides, Lamarck; white-grass, cut-grass, false rice, rice's cousin, &c.

Panicle diffusely branched, often sheathed below; spikelets rather spreading elliptic-oblong; paleæ strongly bristly-ciliate, whitish; stamens three. A perennial grass, found about ditches, sluggish streams and swamps, growing from three to five feet high, flowering in August. It is a coarse, white-topped species, used in some of the southern states for hay, but here deemed of no value. It is not very abundant.

2. LEERSIA VIRGINICA, *Willdenow.*

SYN.—Asprella Virginica, Rœm. and Schult.

Panicle simple, not sheathed at the base; spikelets oblong, closely appressed and somewhat imbricated on the slender branches; stamens two; paleæ sparingly ciliate greenish. A perennial grass, flowering in August, growing to the height of two to four feet. It has no agricultural value; is found about ditches and other wet places. (Plate I, fig. 1.)

3. LEERSIA LENTICULARIS, *Michaux.*

SYN.—Leersia ovata, Poir. Fly-catch grass.

Culm and panicle erect, smoothish; spikelets large, roundish, flat, imbricated; stamens two; paleæ with the keel and veins strongly ciliate. A rare species, growing, in wet places, to the height of two to four feet. The flowers, with their bristly-ciliate margins, are said to catch flies, like the Venus' Fly Trap.

GENUS II. ZIZANIA. *Gronovius.*

Flowers monœcious, the staminate and pistilate in one-flowered, spikelets on the same panicle; glume none, or rudimentary, forming a little cup; paleæ herbaceo-membranaceous, convex.

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Panicle large, pyrimidal, lower branches staminate, spreading, upper branches pistillate, erect; pedicils clavate; lower palea long-awned, rough; styles distinct; grain linear, slender. An annual plant, requiring to be reproduced every year from seed. It grows in water with a gentle current and a depth of two to eight feet. The flowers appear about the last of July and in August; the fruit ripens in September. The grain of the wild rice forms an important item of food for the native Indians, but has not been much used by their white successors. It is found, though sparingly, throughout the state of Illinois, and even extends south to Arkansas and Florida. Cattle are very fond of the soft, juicy culms, and often wade into the water to obtain them. The difficulty of cutting hay in water two to eight feet in depth will prevent this grass from being used for this purpose. (Plate I, fig. 2.)

TRIBE II. PHLEOIDEÆ.

Inflorescence in dense, cylindrical, spike-like heads; spikelets one-flowered; glumes two, of nearly similar texture with the paleæ.

GENUS III. ALOPECURUS, *Linnæus*.

Glumes boat-shaped, strongly compressed-keeled nearly equal, united at the base; lower palea awned on the back, below the middle; upper palea wanting; stamens three; styles mostly united; stigmas long, feathery.

5. Alopecurus Pratensis, *Linnæus*.

Meadow Foxtail grass.

Culm upright, smooth; paleæ equaling the glumes, which are united below the middle; awn exserted more than half its length, twisted; upper leaf half the length of its somewhat inflated sheaths; seeds covered with the paleæ, which are soft and woolly. The Meadow Foxtail is a native of Europe, and known at the west only in cultivation. It is perennial, grows to the height of two feet; flowers in May. It may be found useful in low, wet lands, especially such as h[illegible] clayey soil, not suited for other

Culm ascending, bent at the lower joints; paleæ rather shorter than the obtuse glumes, the awn from near the base projecting half its length beyond it; anther linear; upper leaf as long as its sheath. An introduced species, one to two feet high, perennial, flowering in July and August. It prefers wet clayey soils, and is regarded as of no value in agriculture.

7. Alopecurus Aristulatus, *Michaux.*

Syn.—A. subaristatus, Pers. Wild Water-Foxtail.

Glaucus; the culm decumbent below, at length bent and ascending; paleæ rather longer than the obtuse glumes, scarcely exceeding the awn, which rises from just below the middle; anthers oblong, bright orange. This native species has been confounded with the last, which has been introduced from Europe. It is perennial, growing in water and very wet places, and flowers in June, July and August. The culms grow from one to two feet in length. (Plate I, fig. 3.)

GENUS IV. PHLEUM. *Linnæus.*

Glumes two, equal, carinate, much longer than the paleæ, rostrate or mucronate; paleæ two, thin, included in the glumes, truncate, awnless; styles distinct; stigma plumose, with simple hairs; scales two, unequally two-lobed, glabrous; caryopsis (seed) ovoid, closely covered with the paleæ.

8. Phleum Pratense, *Linnæus.*

Timothy. Herds-grass of New York and New England. Meadow Cats-tail of Europe.

Culm erect; spike cylindrical, elongated; glumes ciliate, on the back truncate, tipped with a bristle less than half their length; anthers purplish. Two to four feet high, perennial, flowers in June and ripens its seed in July. The most commonly cultivated and most valuable species of grass for hay. A native of Europe

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GENUS V. VILFA. *Adanson.*

Spikelets in a contracted or spike-like panicle; glumes carinate, one-nerved, not awned or pointed, the lower smaller; flowers nearly sessile in the glumes; paleæ two, much alike, naked, neither awned nor mucronate, usually longer than the glumes; the upper palea bi-carinate; stigmas simply feathery; caryopsis oblong or cylindrical, deciduous; culms wiry or rigid; leaves involute, usually bearded at the throat, their sheaths often inclosing the lateral panicles.

9. Vilfa Aspera, *Beauvois.*

Syn.—Agrostis aspera, Michx. Agrostis clandestina, Muhl. Sporobolus asper, Kunth.

Culms stout, glabrous, tufted; lower leaves long, rigid, rough on the edges, tapering to a long, slender, pungent point; sheaths ciliate at the edge, and bearing dense tufts of long white hairs at top, partly inclosing the panicle; paleæ much longer than the unequal glumes; grain compressed oval or oblong. A very coarse, rough grass, two to four feet high, growing on dry sandy places. The roots are perennial.

10. Vilfa Vaginæflora, *Torrey.*

Syn.—Agrostis Virginica, Muhl. (Not of Linn.)

Culms slender, ascending, numerous; leaves involute, awl-shaped, somewhat rigid; panicles simple and spike-like, the lateral and often the terminal concealed in the sheaths; paleæ and glumes about equal; only about one-third longer than the linear caryopsis. A low annual, flowering in September; grows in dry gravelly places. (Plate I, figure 5.)

GENUS VI. SPOROBOLUS. *R. Brown.*

Spikelets one or rarely two-flowered, in a contracted or open panicle; paleæ longer than the unequal glumes; stamens two or [illegible] deciduous.

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equal paleæ. A perennial, one to two feet high, flowering in August; prefers dry soil. (Plate I, fig. 6.)

12. Sporobolus Cryptandrus, *Gray.*

Syn.—Agrostis cryptandra, Torrey. Vilfa cryptandra, Torr.

Leaves flat; panicle pyramidal, terminal, partly inclosed, the axils hairy; the upper glume lanceolate, rather acute, twice the length of the lower one, as long as the nearly equal paleæ; sheaths strongly bearded at the throat. Perennial: grows in sandy soil, two to three feet high, flowering in August.

GENUS VII. AGROSTIS. *Linnæus*

Spikelets one-flowered, in an open panicle; glumes two, somewhat equal, or the lower rather longer, usually longer than the paleæ, pointless; paleæ two, very thin, naked, pointless; the lower three to five-nerved, and frequently awned on the back, the upper often minute or obsolete; stamens usually three; grain free; culms cespitose, slender; panicle diffuse, the branches fasciculate-verticillate.

13. Agrostis Scabra, *Willdenow.*

Syn.—A. laxiflora, Richards. A. Michauxii, Trin. Trichodium laxiflorum, Michx. T. montanum, Torr.

Culms very slender, erect, smooth; leaves short and narrow; panicle very loose and divergent, purplish, the long capillary branches flower-bearing at and near the apex; lower palea awnless, or occasionally short awned on the back, shorter than the rather unequal very acute glumes, the upper minute or obsolete. A very abundant grass on the prairies, known by its very slender and delicate panicle. It grows from one to two feet high, flowers in June and July; the roots perennial. (Plate I, fig. 7.)

14. Agrostis Vulgaris, *Withering.*

Syn.—Agrostis polymorpha, Hudson. A. hispida, Willd. A. pumila, Linn. A. alba, Muhl. (Not of Linn.) Red-top. Herd's grass of Pennsylvania, and the states south of it. Bent-grass of English writers.

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upper one-half its length. A perennial grass, growing from one to two feet high, flowering in July, and ripening its seed in August. It is well known, though much less cultivated than it should be. It is adapted to moist places, and might be made to occupy the place of the useless weeds on the wet prairies. It is a native grass.

15. Agrostis Alba, *Linnæus.*

Syn.—A. stolonifera, Linn. A. stricta, Pursh. A. decumbens, Muhl. White-top. White Bent-grass, and Fiorin grass of the English.

Panicle narrow, contracted after flowering, (greenish white, or slightly tinged with purple,) the branches rough; ligule oblong or linear; lower palea rather shorter than the glumes, five-nerved, awnless, or rarely short awned on the back, near the tip; culms ascending, rooting at the lower joints. A perennial grass, much less common than the last, one to two feet high, flowering in July. It is quite inferior to the red-top.

GENUS VIII. CINNA. *Linnæus.*

Glumes lanceolate, acute, strongly keeled, hispid-serrulate on the keel; the lower rather smaller; flowers stalked in the glumes, smooth, naked; the lower palea longer than the upper, short awned on the back, below the pointless apex; stamen one, opposite the one-nerved upper palea; grain linear-oblong, free.

16. Cinna Arundinacea, *Linnæus.*

Syn.—Agrostis cinna, Lamarck. Muhlenbergia cinna, Trin.

Panicle spreading, large, loose compound; spikelets much compressed, green, or rarely purplish; leaves linear-lanceolate flat. Grows in moist, shady swamps; perennial; flowers in August; height two to five feet. (Plate I, fig. 8.)

GENUS IX. MUHLENBERGIA. *Schreber.*

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17. Muhlenbergia Sobolifera, *Gray.*

Syn.—Agrostis sobolifera, Muhl. Cinna sobolifera, Link.

Culm erect, sparingly branched; panicle simple, contracted, very slender or filiform; glumes barely pointed, almost equal, one-third shorter than the unequal paleæ; lower palea abruptly short-mucronate. Grows in open, rocky woods; perennial; flowers in August. Culms one or two feet high.

18. Muhlenbergia Glomerata, *Trinius.*

Syn.—Polypogon glomeratus, Willd. P. racemosus, Nutt. Agrostis racemosa, Michx. A. setosa. Muhl. Cinna racemosa, Kunth.

Culm erect, sparingly branched or simple; panicle oblong-linear, contracted into an interrupted glomerate spike, long-peduncled, the branches sessile; glumes awned, nearly equal, and (with the bristle-like awn) about twice the length of the unequal, very acute paleæ. A perennial species, flowering in August and September, one or two feet in height. Found mostly in the very wet meadows and swamps.

19. Muhlenbergia Mexicana, *Trinius.*

Syn.—Agrostis Mexicana, Linn. A. lateriflora, Michx. Cinna Mexicana, Link.

Culm erect, much branched; panicle lateral and terminal, often included at the base, contracted, the branches densely spiked-clustered, linear, (green and purplish;) glumes awnless, sharp-pointed, unequal, the upper about the length of the very acute lower palea. A troublesome weed, growing two or three feet high in low grounds. It is perennial, and flowers in August.

20. Muhlenbergia Sylvatica, *Torrey and Gray.*

Syn.—Agrostis diffusa, Muhl. A. sylvatica, Torr.

Culm ascending, much branched and diffusely spreading, smooth; panicle contracted, densely many-flowered; glumes almost equal, bristle-pointed, nearly as long as the lower palea, which bears an awn twice or thrice the length of the spikelet. In rocky woods;

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Culm upright, slender, simple, or sparingly branched; panicle contracted, slender, loosely flowered; glumes slightly unequal, short-pointed, half the length of the lower palea, which bears an awn three or four times the length of the spikelet. A perennial grass, flowering in August. Grows in the shade of trees, about three feet high. (Plate I, fig. 9.)

22. Muhlenbergia Diffusa, *Schreber.*

Syn.—Dilepyrum minutiflorum, Michx. Drop-seed. Nimble-will.

Culms diffusely, much branched; panicle contracted, slender, rather loosely many-flowered, terminal and lateral; glumes extremely minute, the lower obsolete, the upper truncate; awn once or twice longer than the paleæ. This species has been considered valuable, but I believe never cultivated. It grows on dry hill-sides, eight to eighteen inches high, flowering in August and September. Perennial.

GENUS X. BRACHYELYTRUM. *Beauvois.*

Spikelets one-flowered, with a clavate pedicel or rudiment of another flower; glumes two, minute, the lower one scarcely perceptible, upper pointless, persistent, shorter than the thick stalk of the flower; paleæ inclosing the linear-oblong grain, somewhat equal, rough with scattered short bristles; the lower five-nerved, contracted at the apex into a long, straight awn; the upper two-pointed; stamens two; anthers and stigmas linear, elongated.

23. Brachyelytrum Aristatum, *Beauvois.*

Syn.—Muhlenbergia erecta, Schreb. M. aristata, Pers. M. brachyelytrum, Trin. Dilepyrum aristosum, Michx.

Culm simple, with rather downy sheaths; broad, flat, lanceolate pointed leaves and large spikelets; panicle contracted, simple. A perennial grass, one to three feet high, flowering in June and July. Grows in timbered lands. (Plate I, fig. 10.)

GENUS XI. CALAMAGROSTIS. *Adanson.*

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Spikelets one-flowered, [illegible] with an abortive pedicel or

palea bearing a slender awn on the back, or rarely awnless; upper mostly shorter; stamens three.

24. CALAMAGROSTIS CANADENSIS, *Beauvois.*

SYN.—C. Mexicana, Nutt. C. Purshii, Kunth. C. confinis, Spreng. Arundo Canadensis, Michx. A. confinis, Willd. A. cinnoides, Muhl. A. agrostoides, Ph. Blue joint.

Panicle oblong, loose, (often purplish;) lower palea nearly as long as the lanceolate acute glumes, not exceeding the very fine hairs, bearing an extremely delicate awn below the middle, scarcely equaling or exceeding the hairs; rudimentary pedicel minute. Under the name of Blue joint, this species of grass has recently attracted some attention, and it is, perhaps, worthy of further experiment to test its real value- It grows in wet grounds; is perennial, and flowers in July. It grows from three to five feet in height. (Plate I, fig. 11.)

25. CALAMAGROSTIS COARCTATA, *Torrey.*

SYN.—C. Canadensis, Nutt. Agrostis glauca, Muhl. Arundo coarctata, Torr.

Panicle contracted, dense; lower palea shorter than the taper-pointed tips of the lanceolate glumes, almost twice the length of the hairs; (excepting the strong tufts borne by the conspicuous rudiment;) bearing a rigid and short exserted awn above the middle; grain hairy, crowned with a bearded tuft. This species attains the height of from three to six feet; grows mostly in wet grounds; perennial, flowering in August.

TRIBE IV. STIPACEÆ.

Inflorescence panicled or racemose; spikelets solitary, one-flowered, usually large; glumes membranaceous; paleæ mostly two, lower one coriaceous, involute, one to three-awned, closely inclosing the upper and the grain; scales mostly three.

GENUS XII. STIPA. *Linnæus.*

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Spikelets one-flowered; flowers stipitate; glumes membranace-

26. Stipa Avenacea, *Linnæus.*

Syn.—S. barbata, Michx. S. Virginica, Pers. Black oat grass.

Culm slender, leafy chiefly at the base; leaves almost bristle formed; paleæ blackish, nearly as long as the pointed glumes; awns two to three inches long, naked, bent above, twisted below; panicle somewhat secund and spreading, the branches mostly in pairs. Grows in dry, sandy places in the timbered lands and openings; one to two feet high; flowering in July. Perennial. (Plate II, fig. 1.)

27. Stipa Spartea, *Trinius.*

Syn.—S. robusta, Nutt. S. juncea, Pursh. (Not of Linn.) Porcupine grass.

Culm rather stout; panicle contracted; paleæ linear, pubescent below, shorter than the lanceolate, slender, subulate-pointed, greenish glumes; the twisted awn three and a half to seven inches long; pubescent below; rough and bent above. This species grows on the prairies and borders of the openings, two or three feet high, flowering in July. Not perennial.

GENUS XIII. ARISTIDA. *Linnæus,*

Flowers stipitate; glumes membranaceous, unequal, often bristle-pointed; paleæ two, the lower tipped with a triple awn; upper much smaller, awnless; oviary stipitate, smooth; scales two, entire, smooth; panicle racemed.

28. Aristida Dichotoma, *Michaux.*

Syn.—Curtopogon dichotomus, Beauv. Poverty grass.

Culms in tufts much fork-branched; spikelets in short contracted racimes; lateral awns minute, the middle one not longer than the paleæ, bent; glumes one-nerved. Grows on the poorest soils, five to fifteen inches high, flowering in September. Annual. (Plate II, fig. 2.)

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30. Aristida Gracilis, *Elliott.*

Culm slender, erect; branched only towards the base; flowers as long as the glumes; lateral awns as long as the palæ, about half the length of the horizontally spreading one; panicle long, slender, spike-like. Grows on dry, sandy soil; annual; flowers in September.

31. Aristida Stricta, *Michaux.*

Syn.—A. adcencionis, Waltr. Chætaria stricta, Beauv.

Culm straight, erect, simple; leaves filiform, downy or glabrous; racemes long, spike-like, crowded; awns nearly equal, twice the length of the palea, all spreading; spikelets appressed; glumes unequal, very acute; lower palea smooth. Found in sandy places; perennial; flowering in June and July; height two to three feet.

32. Aristida Purpurascens, *Poiret.*

Syn.—A. racemosa, Muhl. A. affinis, Kunth. A. Geyeriana, Steudel.

Culms mostly simple; clothed with long, smooth leaves below; panicle elongated; densely flowered; awns nearly equal, three or four times the length of the paleæ, at length spreading; lower palea rough or minutely serrulate-hispid on the keel and slender lateral nerves. Perennial; flowers in September; culms two or three feet high; grows on dry grounds.

33. Aristida Oligantha, *Michaux.*

Culms strict, erect, branching below; leaves convolute, filiform; spikelets large, distant, solitary, alternate, very short pedicelled; glumes equaling the flower, the lower three to five-nerved and two-cleft at the tip, the upper one-nerved and awned at the tip; awns divaricate, nearly equal. Found on the prairies of Illinois by Michaux.

34. Aristida Tuberculata, *Nuttall.*

Long-awned Poverty-grass.

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equal; divergently bent awns, twisted together at the base. Annual; flowers in July and August; culms six to eighteen inches high; grows on dry prairies.

TRIBE V. CHLORIDEÆ.

Spikelets usually several-flowered, (rarely one-flowered,) with the upper flowers imperfect, disposed in one-sided racemose or digitate spikes; glumes persistent, the upper one appearing as the outer one; rachis jointless; stamens two or three.

GENUS XIV. SPARTINA *Schreber.*

Spikelets one-flowered, very flat, closely imbricated in two rows on the outer side of the triangular rachis; glumes unequal, acute, or bristle-pointed, serrulate on the keel, the upper one larger; palea membranaceous awnless, shorter than the upper glume; stamens three.

35. Spartina Cynosuroides, *Willdenow.*

Syn.—Trachynotia cynosuroides, Michx. Limnetis cynosuroides, Persoon. Fresh water cord-grass.

Culm rather slender; leaves long and narrow, tapering to a very slender point, keeled, flat, smooth except on the margins; spikes five to ten, scattered, spreading; glumes awn-pointed, the lower equaling the lower palea. Perennial; flowers in August; fruit ripe in September; culms two to four feet high. River banks and margin of lakes—common. (Plate II, fig. 3.)

GENUS XV. BOUTELOUA. *Lagasca.*

Spikelets crowded and closely sessile in a short spike on one side of a flattened rachis; the spikes in a simple raceme; glumes keeled, the lower one shorter; lower palea of the perfect flower three-nerved, three-toothed at [illegible] the upper palea two-

Culms cespitose, leafy at the base; leaves lanceolate-linear, hispid on the mid-rib and margin; spikes one to three, subterminal; glumes papillose-hispid; outer palea of perfect flower trifid. Flowers in August; culms twelve to fifteen inches high. Sandy soil. (Plate II, fig. 4.)

37. Bouteloua Curtipendula, *Torrey.*

Syn.—Chloris curtipendula, Michx. Atheropogon apludoides, Muhl. Eutriana curtipendula, Trin. Cynosurus secundus, Pursh.

Culm erect; leaves narrow, taper-pointed; spikes numerous, linear-oblong, rather distant, somewhat reflexed, forming a strict racame; spikelets two, (rarely three-flowered:) lower palea of the perfect flower tricuspidate; of the abortive flower, with three bristles; anthers bright red. Perennial; flowers in August; culms one to three feet high. Dry prairies and oak openings.

GENUS XVI. DACTYLOCTENIUM. *Willdenow.*

Spikelets several-flowered, with the uppermost flower imperfect, crowded on one side of a flattened rachis, forming dense pectinate spikes. Spikes two to five, digitate, at the summit of the culm. Glumes compressed, keeled, membranaceous, the upper one awn-pointed. Lower palea strongly keeled, boat-shaped, pointed; stamens three. Pericarp a thin utricle, containing a loose, globular, and rough-wrinkled seed.

38. Dactyloctenium Ægypticum, *Willdenow.*

Syn.—Eleusine Ægypticum, Pers. Chloris mucronata, Michx.

Culms diffuse, often creeping at the base; spikes four or five; leaves ciliate at the base. A weed introduced from Europe, and found about cultivated fields. Annual, flowers in June.

GENUS XVII. ELEUSINE. *Gærtner.*

Spikelets two to six-flowered, closely imbricate-spiked, on one side of a flattish rachis; the spikes digitate clustered; glumes membranaceous, awnless and pointless, the lower ovate keeled,

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Culms branched at the base, ascending, flattened; spikes two to five, greenish; spikelets about five-flowered. An introduced annual about yards, growing from eight to fifteen inches high, and flowering throughout the season. In the latter part of summer it makes a fine green carpeting for yards and lanes that had been previously naked and muddy; cattle and hogs are fond of feeding on it. (Plate II, fig. 5.)

GENUS XVIII. LEPTOCHLOA. *Beauvois.*

Spikelets three to many-flowered, loosely spiked on one side of a long filiform rachis; spikes racemed: glumes membranaceous, keeled, often awn-pointed, the upper one somewhat larger; lower palea three nerved, larger than the upper; stamens two or three.

40. Leptochloa Mucronata, *Kunth.*

Syn.—Oxydenia attenuata, Nutt. Eleusine mucronata, Michx. (Not of Muhl)

Sheaths hairy; spikes numerous in a long panicle-like raceme; spikelets small; glumes more or less mucronate, nearly equaling or exceeding the three or four awnless flowers. An annual grass, two or three feet high, flowering in August. (Plate II, figure 6.)

41. Leptochloa Fascicularis, *Gray.*

Syn.—Festuca fascicularis, Lam. F. polystachya, Michx. Diplachne fascicularis, Beauv.

Smooth; leaves longer than the geniculate decumbent culms; the upper sheathing the base of panicle like raceme, which is composed of many strict spikes; spikelet seven to eleven-flowered; much longer than the lanceolate glumes; paleæ hairy-margined towards the base; the lower one with two small lateral teeth and a short awn in the cleft of the apex.

This species grows in wet prairies, eight to fifteen inches high; annual, flowering in August. First detected in Illinois by Michaux.

TRIBE VI. FESTUCINEÆ.

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GENUS XIX. TRICUPSIS. *Beauvois.*

Spikelets three to twelve-flowered; glumes unequal; rachis of the spike bearded below each flower; palea chartaceous, lower one much larger than the upper, convex, hairy on the back, three-nerved, tricuspidate at apex by the projection of the nerves, upper palea emarginate, two-keeled; stamens three; stigmas plumose, dark purple.

42. Tricuspis Sesleriodes, *Torrey.*

Syn.—Poa flava, Linn. P. sesleriodes, Michx. P. quinquefida, Ph. Windsoria poæformis, Nutt. Tridens quinquefida, Roem. and Schultz. Eragrostis tricuspis, Trin. Uralepis cuprea, Kunth. Tall red-top.

Culm upright, very smooth; leaves smooth; panicle large, compound, the rigid capillary branches spreading, naked below; spikelets very numerous, five to seven-flowered, shining, purple, the flowers hairy towards the base. This grass has attracted some attention and has even been cut for hay. It is annual, grows from three to five feet high, presenting a handsome appearance. The flowers appear in August and September. (Plate II, fig. 7.)

GENUS XX. DIARRHENA. *Rafinesque.*

Glumes ovate, much shorter than the flowers, coriaceous, the lower much smaller; lower palea ovate, convex on the back, three-nerved above, sharp-pointed; scales ovate, ciliate; stamens two; grain very large, obliquely ovoid, pointed, rather longer than the paleæ.

43. Diarrhena diandra, *Wood.*

Syn.—Festuca diandra, Michx. Diarrhena Americana, Beauv.

Culms simple, smooth, with long broadly-linear flat leaves towards the base, naked above, bearing a few short pedicelled spikelets in a very simple panicle. A perennial grass, flowering in August, the culms fifteen to thirty inches high, growing in shady, damp places. (Plate II, fig. 8.)

GENUS XXI. DACTYLIS. *Linnæus.*

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44. Dactylis Glomerata, *Linnæus.*

Cock's Foot. Orchard-grass.

Rough and rather glaucous; leaves broadly-linear, keeled; branches of the panicle naked at the base; spikelets three or four flowered. A most valuable species of grass both for pasture and hay. It has been introduced from Europe and may be found about fields and meadows, especially in shady places. It should be introduced into the "oak openings," &c., where it would doubtless soon take the place of the wild herbage. It is perennial, flowering in June, and growing to the height of two or three feet. (Plate II, fig. 9.)

GENUS XXII KŒLERIA. *Persoon.*

Spikelets three to seven-flowered, in a dense narrow spike-like panicle; glumes and lower palea membranceous, compressed-keeled barely acute, or the latter often mucronate or bristle-pointed just below the tip; stamens three; styles very short.

45. Kœleria Christata, *Persoon.*

Syn.—K. nitida, Nuttall.

Panicle narrowly spiked, interrupted at the base; spikelets two to four-flowered; lower palea acute, often mucronate-pointed; leaves flat, the lower often sparingly hairy or ciliate. Perennial; flowers in July. Culms twenty to thirty inches high. Dry, gravelly places.

GENUS XXIII. EATONIA. *Rafinesque.*

Spikelets usually two-flowered, in a contracted, slender panicle; glumes about equal in length, but very dissimilar, rather shorter than the flowers; the lower narrowly linear, keeled, one-nerved; the upper obovate, three-nerved; lower palea oblong, obtuse, boat-shaped, naked, chartaceous, minutely roughened, at least when old; stamens three; grain linear-oblong, grooveless.

46. Eatonia Obtusata, *Gray.*

Syn.—*Rehonlea* [illegible] Gray. Aira obtusata, Michx. A.

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47. Eatonia Pennsylvanica, *Gray.*

Syn.—Reboulea Pennsylvanica, Gray. Kœleria Pennsylvanica, De C. Aira mollis, Muhl.

Panicle long and slender, rather loose; upper glume obovate, barely obtuse, often slightly mucronate; the flowers lanceolate. Perennial; flowers in June and July. Culms two feet high. Grows on moist soils in woods and meadows.

GENUS XXIV. MELICA. *Linnæus.*

Spikelets two to five-flowered; the one to three upper flowers imperfect and dissimilar, convolute around each other; glume large chartaceous-membranaceous, scarious-margined, convex, obtuse, the upper seven to nine-nerved; paleæ of the same texture as the glumes, the lower seven-nerved, flattish-convolute or convex, obtuse, entire; stamens three; stigmas branched-plumose.

48. Melica Mutica, *Walter.*

Syn.—M. glabra, Michx. M. speciosa, Pursh.

Spikelets few on each branch of the loose panicle, smooth, with two perfect flowers and a stalked rudiment composed of three abortive ones; glumes and paleæ very obtuse. A perennial grass, flowering in June. It grows in rich soils three or four feet high.

GENUS XXV. GLYCERIA. *R. Brown.*

Spikelets mostly terete; rachis separating into joints; glumes two, pointless, nearly equal, membranaceous; paleæ nearly equal, awnless, chartaceous, the lower obtuse, five to seven-nerved, the upper bi-carinate; stamens two or three; stigmas de-compound; grain oblong.

49. Glyceria Canadensis, *Trinius.*

Syn.—Bryza Canadensis, Michx. Poa Canadensis, Beauv. Poa aquatica, Pursh, (not of Linn.) Rattlesnake grass.

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50. Glyceria Nervata, *Trinius.*

Syn.—G. Michauxii, Kunth. Poa nervata, Willd. P. striata, Michx. P. lineata, Pers. P. parviflora, Ph. Briza Canadensis, Nutt.

Branches of the panicle capillary, at length drooping; spikelets numerous, oblong, three to seven-flowered, commonly purplish; paleæ oval, obtuse, nearly equal in length; leaves rather long. Perennial; flowers in June. Culms one to three feet high. Moist meadows—common.

This species grows abundantly in wet meadows, and is one of the most valuable of the native grasses. It retains its nutritive matter until the seed is fully ripe, and the large, fan-like shoots that spring up immediately afterwards are very succulent and valuable. It is remarkably hardy. It has been cultivated in England, and found to possess many valuable properties in that humid climate. (Plate II, fig. 2.)

51. Glyceria Fluitans, *R. Brown.*

Syn.—Festuca fluitans, Linn. Poa fluitans, Scopol. Manna-grass.

Spikelets seven to thirteen-flowered, linear terete appressed to the branches; lower palea oblong, obtuse, rather longer than the blunt, two-toothed upper one; panicle secund, slightly branched, divaricate; stamens three; ligule long; culm flattened. A very common grass, in shallow water and about marshy places, growing from two to five feet in height; flowering in June. It is a native, also, of Europe, where it has been cultivated. The grass is early, sweet and nutricious; the seeds afford food for water fowls and fish, and are also used as an article of human food, with the name of *manne seed* or *Manna de Prusse.* They are esteemed a delicacy in soups and gruels; and when ground into meal afford bread but little inferior to that from wheat.

GENUS XXVI. POA. *Linnæus.*

Spikelets ovate-oblong compressed, few-flowered, pedicellate, *in diffuse panicles; glumes* two, shorter than the paleæ, the low-

52. Poa Annua, *Linnæus.*

Culms spreading, flattish; leaves short; panicle often one-sided, at length spreading; spikelets crowded, very short-pedicelled, three to seven-flowered, ovate-oblong; flowers minutely downy above; root fibrous. Annual; flowers from April to November. Culms three to eight inches long. Cultivated grounds. Sparingly introduced in the west. It makes excellent food for cows, affording milk and butter of the best quality.

53. Poa Brevifolia, *Muhlenberg.*

Syn.—Poa pungens, Nuttall. P. flexuosa, Muhl. P. cuspidata, Barton.

Culm flattened, stoloniferous from the base; root-leaves long and linear, those of the culm two or three, lanceolate, very short, all abruptly sharp-pointed; branches of the spreading panicle, mostly in pairs; spikelets three to five-flowered; glumes pointed, rough on the keel; lower palea oblong-lanceolate, rather obtuse, hairy along the keel below. A perennial species, flowering in April and May, and growing to the height of one or two feet.

54. Poa Sylvestris, *Gray.*

Culm flattened, slender, upright; leaves pale, linear; those of the culm much shorter than the internodes; ligules short; panicle pyramidal oblong, long-peduncled; branches numerous from each joint, bearing two to three-flowered spikelets from about the middle; flowers oblong, obtuse, rather distinctly nerved, densely silky-hairy on the whole length of the keel, and on the margins to the middle. Grows on rocky banks and natural meadows. Perennial; culms two to three feet high.

55. Poa Serotina, *Ehrhart.*

Syn.—Poa palustris, Muhl. P. crocata, Michx. False red-top.

Culm terete slender, bearing narrowly linear leaves, shorter than the internodes, and a long, peduncled, ample panicle; branches mostly in fives, rough, naked at the base, compound above, bearing numerous short-pedicelled, two to four flowered spikelets; glumes lanceolate, sharp-pointed; flowers oblong-lanceolate, acu-

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56. Poa Nemoralis, *Linnæus.*

Culm flattish; leaves pale, rather long; ligules very short; branches of the loose nearly sessile panicle filiform, nearly erect, with several about three-flowered spikelets above the middle; flowers lanceolate, acutish, obsoletely nerved, minutely soft-hairy along the keel below, naked on the sides; culm and leaves smooth. A native, also, of Europe, where it has recently been cultivated to some extent. It is perennial, prefers the shade of trees, flowers in June, and grows to the height of one or two feet. (Plate II, fig. 12.)

57. Poa Pratensis, *Linnæus.*

Syn.—Poa viridis, Muhl. Meadow grass, Spear grass, June grass, Indian grass, Kentucky Blue grass, &c.

Culms and sheaths smooth; branches of the panicle commonly in fives, spreading; spikelets three to five-flowered; flowers elliptical-lanceolate, nerved, acute, hairy on the lateral nerves and keel; ligule blunt, short; seeds acuminate, pointed, furrowed on the flat side; rhizoma creeping. Perennial; flowers from May to July; culms one to three feet high. A native of Europe, but extensively naturalized in this country; following very closely upon the settlement of the country or preceding it. The Kentucky Blue grass is only a more vigorous growth of this same species of grass.

58. Poa Compressa, *Linnæus.*

Syn.—Blue grass—Wire grass.

Culms much flattened, obliquely ascending from a creeping rhizoma, the uppermost joint near the middle; leaves short, bluish green; panicle dense, contracted, the short branches two to four together, covered, to near the base, with the four to nine-flowered spikelets; flowers linear-elliptical, rather obtuse, hairy below on the lateral nerves and keel; ligule short, obtuse. Perennial; flowers from June to August. Culms nine to eighteen inches long. Sparingly naturalized in the west. This is the true Blue grass of English writers, and is valuable for cultivation.

GENUS XXVII. ERAGROSTIS. *Beauvois.*

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59. Eragrostis Reptans, *Nees.*

Syn.—Poa reptans, Michaux.

Spikelets linear-lanceolate, flat, ten to thirty-flowered clustered, almost sessile; flowers lanceolate, ovate, smooth, acute; leaves short, almost awl-shaped, smoothish; culms branched, prostrate and creeping. Annual; flowers in August. Culms six to fifteen inches long. (Plate II, fig. 13.)

60. Eragrostis Megastachya, *Link.*

Syn.—Poa eragrostis, Linn. Briza eragrostis, Linn. Eragrostis major, Host. Megastachya eragrostis, Beauv.

Branches of the panicles single, or in pairs, mostly naked in the axils, covered with the spikelets; panicles oblong, crowded; spikelets eight to forty-flowered, lead colored, on short petioles; flowers ovate, obtuse or mucronate; leaves flat, smooth; culms low branched at the base, spreading. Annual; flowers in July and August. Culms twelve to eighteen inches long. About gardens and waste places—quite common.

61. Eragrostis Pilosa, *Beauvois.*

Syn.—Poa pilosa, Linn. P. pectinacea, Michx. P. tenella, Pursh.

Panicle pyramidal, large, loose; branches, except the lower, scattered and naked in the axils, compound; spikelets five to twelve-flowered, purplish, nearly linear, flattish, about equaling the pedicels, flowers ovate, acutish; leaves flat or involute, bearded with long hairs at the throat; culms low, branched at the base, spreading. An annual grass, flowering in August, growing from six to fifteen inches high.

62. Eragrostis Frankii, *Meyer.*

Syn.—E. erythrogoma, Nees.

Much branched, diffuse; panicle ovate-oblong, rather dense, spreading; spikelets two to five-flowered, on slender pedicels;

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63. Eragrostis Tenuis, *Gray.*

Syn.—Poa tenuis, Ell. P. capillaris, Michx. (Not of Linn.) P. trichodes, Nutt. E. Geyeri, Stendel.

Panicle virgately elongated, very loose, their remote divisions and long diverging pedicels capillary; glumes lanceolate or awl-shaped, very acute, membranaceous, flowers membranaceous oblong-lanceolate acute; lower palea three-nerved; the upper ciliate-scabrous. The panicle often two feet long; leaves rather rigid, one or two feet long. This species grows in sandy soil, flowers from August to October.

64. Eragrostis Capillaris, *Nees.*

Syn.—Poa capillaris, Linn.

Panicle expanding, very compound, loose, delicate; the axils naked; spikelets oblong, acute; two to four-flowered, purplish, on long capillary pedicels; sheaths and base of the flat leaves often hairy; glumes and flowers ovate, acute. Grows in sandy waste places one or two feet high, flowering in August.

65. Eragrostis Spectabilis, *Gray.*

Syn.—Poa spectabilis, Pursh. P. hirsuta, of authors, not of Mx.

Panicle divergently spreading, the branches rigid, reflexed with age, a bearded tuft in the principal axils; spikelets oblong or linear, seven to ten or fifteen-flowered, purplish, the lateral ones often not exceeding their appressed pedicels; flowers ovate, minutely ciliate; culm and long leaves rigid, mostly smooth; lower sheaths often downy. Annual; flowers in August and September. Culms one to two feet high.

GENUS XXVIII. FESTUCA. *Linnæus.*

Spikelets three to many-flowered, panicled or racemose; flow-

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Panicle very simple and spike-like, somewhat one-sided; spikelets seven to nine-flowered; awns shorter than the involute-awl-shaped paleæ, leaves almost bristle-form; culm filiform. Annual; flowers in July. Culms six to twelve inches high. Dry, sterile places.

67. Festuca Nutans, *Willdenow.*

Panicle diffuse, at length nodding; branches long, slender, mostly in pairs, rough, naked below; spikelets ovate, three to five-flowered, near the extremity of the branches, on pretty long pedicels; flowers ovate-oblong, rather obtuse, smooth, awnless, very obscurely five-nerved; culms naked above; leaves broad-linear, taper-pointed, dark-green, often hairy. Perennial; flowers in July. Culms two to four feet high. Woods. (Plate III, fig. 1.)

GENUS XXIX. BROMUS. *Linnæus.*

Spikelets five to many-flowered, panicled; glumes unequal, membranaceous, the lower one to five-nerved; the upper three to nine-nerved; lower palea convex on the back or slightly keeled, about seven-nerved at the base, awned or bristle-pointed from below the mostly two-cleft tip; upper palea at length adhering to the groove of the oblong or linear grain; stamens three.

68. Bromus Secalinus, *Linnæus.*

Syn.—Cheat or chess.

Panicle spreading, the drooping peduncles but little branched; spikelets oblong-ovate, turgid, smooth, of eight or ten flowers, not overlapping each other, mostly longer than the awn; lower glume five-nerved; upper seven-nerved. Chess is an annual plant, growing about grain fields, two to three feet high, flowering in June. It is a native of Europe and Central Asia. Supposed by some to be degenerated wheat—a supposition that is not very probable. A little careful investigation, with a knowledge of the nature of

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length of the lanceolate-oblong flowers; culm slender; leaves and sheaths conspicuously or sparingly hairy. A perennial; flowering in June and July; the culms eighteen inches to three feet high.

70. Bromus Ciliatus, *Linnæus.*

Syn.—B. Canadensis, Michx. B. pubescens, Muhl. B. purgans, Linn.

Panicle compound, very loose, the elongated branches at length divergent drooping; spikelets seven to twelve-flowered; lower glume one-nerved, the upper three-nerved; flowers oblong-lanceolate, tipped with an awn half to three-fourths their length; upper palea bristly-ciliate; the lower silky, with appressed hairs near the margins, smoothish on the back; leaves large, smooth or somewhat hairy; sheaths often hairy near the top. Varies much as to pubescens, &c. Perennial; flowers in July and August. Culms three to four feet high. (Plate III, fig. 2.)

GENUS XXX. UNIOLA. *Linnæus.*

Spikelets many-flowered, very flat, two-edged; one or more lower flowers, sterile, and consists of a single palea; glumes lanceolate, compressed-keeled; paleæ of perfect flowers two, membranaceo-coriaceous, the lower one boat-shaped, striate-nerved, upper one doubly keeled; grain free, smooth, laterally flattened, inclosed in the paleæ; stamens two or three.

71. Uniola Latifolia, *Michaux.*

Spikelets slender-pedicelled, drooping, in an ample, loose panicle, oblong-ovate, ten to fifteen flowered; flowers nearly appressed, ovate-lanceolate, slightly scythe-shaped, ciliate on the keel, the lowest one neutral, and like a third glume; leaves flat, broad; stamen one. Perennial; flowers in August. Culms three to four feet high. (Plate III, fig. 3.)

GENUS XXXI. PHRAGMITES. *Trinius.*

Spikelets three to seven-flowered; flowers rather distant; rachis

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72. Phragmites Communis, *Trinius.*

Syn.—Arundo phragmites, Linn. Reed.

Panicle loose, diffuse when old; spikelets three to five-flowered. A tall, stout grass, with numerous broad leaves and a large terminal panicle. Perennial; flowers in August and September. Culms six to twelve feet high. Grows in shallow ponds and swamps. This large and showy grass may be found to possess valuable properties. (Plate III, fig. 4.)

GENUS XXXII. ARUNDINARIA. *Richards.*

Spikelets many-flowered, somewhat compressed; florets distant, perfect or staminate only; glumes concave, awnless, small, lower smaller than the upper; paleæ herbaceous, lower one ovate, concave, sharply mucronate, many-nerved, the upper one two-keeled. Scales three, longer than the ovary, which is sessile and glabrous; stamens three; styles three, very short; stigmas plumose, the hairs long, simple, or sparingly branched; caryopsis free, ovoid-oblong, somewhat curved terete; culms woody.

73. Arundinaria Macrosperma, *Michaux.*

Syn.—Miegia gigantea, Nutt. Cane.

Leaves linear-lanceolate, green on both sides, smoothish; panicle terminal, sub-racemose, simple; spikelets seven to ten-flowered, purple, smooth, acuminate. Perennial; flowers in March and April. Culms thirty to forty feet high; an arborescent grass. Southern Illinois and Indiana, extending up the Ohio river to the falls at New Albany. Extensively used for fishing rods. (Plate III, fig. 5.)

TRIBE VII, HORDEINEÆ.

Spikelets several (rarely one) flowered, sessile, on opposite sides of a toothed rachis, forming a solitary spike; glumes horizontal, often side by side on the same plain, sometimes deficient; the terminal or lateral florets often abortive; paleæ awned or awnless; stamens three.

GENUS XXXIII. LEPTURUS. *Robert Brown.*

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74. Lepturus Paniculatus, *Nuttall.*

Culms compressed; leaves short, rigid, sheathing the base of the panicle; panicle incurved, acutely triangular, rigid, bearing six to ten compressed subulate spikes on one side, each one to two inches long; spikelets remote, on one side of the rachis; glumes rigidly fixed, unequal, parallel; paleæ two, the outer of the same texture as the glumes, the inner membranaceous. Annual; flowering in June. Culm one foot high. Found at Augusta, Illinois, by Dr. S. B. Mead. (Plate III, fig. 6.)

GENUS XXXIV. LOLIUM. *Linnæus.*

Spikelets many-flowered, sessile, solitary, and placed edgwise on the continuous rachis; glume only one, external; flowers naked at the base; lower palea lanceolate, mucronate, or with a short awn at tip; upper one two-keeled; spike simple.

75. Lolium Perenne, *Linnæus.*

Darnel; ray-grass; rye-grass.

Glume much shorter than the spikelet; flowers six to nine, usually awnless, sometimes awn-pointed; seed oblong, compressed, convex on one side, furrowed lengthwise on the other; paleæ adherent. Perennial; flowers in June. Culms one to two feet high. Introduced and occasionally cultivated. A native of Europe and Asia. This grass has some good qualities to recommend it, and should be cultivated with other species in our pastures and meadows. (Plate III, fig. 7.)

GENUS XXXV. TRITICUM. *Linnæus.*

Spikelets three to several-flowered; compressed, with the flat sides towards the rachis; glumes nearly equal and opposite; lower palea nearly like the glumes, convex, awned or merely mucronate; the upper one flat, bristle-ciliate on the two keels, free, or adherent to the grooves of the grain; ovary pubescent at the summit.

76. Triticum Vulgare, *Villares.*

Syn.—*T. sati*[illegible] (Winter and

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77. Triticum Turgidum, *Linnæus.*

Syn.—T. Compositum, Linn. Egyptian wheat.

Spikes compound; spikelets awned, villous, crowded. Cultivated only as a matter of curiosity.

78. Triticum Repens, *Linnæus.*

Syn.—Triticum pauciflorum, Schw. Agropyron repens, Beauv. Couch grass. Quitch-grass.

Rhizoma creeping extensively; spikelets four to eight-flowered; glumes five to seven-nerved; rachis rough on the angles; awn none, or never more than half the length of the flower; leaves flat, roughish, or hairy above. Borders of woods and openings. Perennial; flowers in June and July. Culms one to three feet high. A mere weed, of no use for food of cattle, &c. Its disposition to spread should be checked, or it may hereafter become troublesome to the farmer. (Plate III, fig. 8.)

GENUS XXXVI. HORDEUM. *Linnæus*

Spikelets one-flowered, with an awl-shaped rudiment on the inner side, three at each joint of the rachis, lateral ones usually abortive; glumes side by side in front of the spikelets, slender and awn-pointed, or bristle-form; paleæ herbaceous, the lower convex, long-awned from the apex; stamens three; grain oblong, commonly adhering to the paleæ.

79. Hordeum Vulgare, *Linnæus.*

Syn.—Barley. Four-rowed barley.

Spikelets all fertile, awned; the flowers arranged so as to form a nearly four-rowed spike. Cultivated. Annual; flowers in May and June; culms two to three feet high. Supposed to be a native of Sicily and Tartary.

80. Hordeum Juratum, *Linnæus.*

Syn.—Squirrel-tail grass.

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Lateral flowers abortive, neutral, on a short pedicel, short-

81. Hordeum Pusillum, *Nuttall.*

Lateral flowers imperfect and neutral, awnless but pointed, the perfect flower bearing an awn nearly twice the length of the paleæ, equaling the short awns of the rigid glumes; spike linear. Annual; flowers in May. Culms four to ten inches high. Affords a good "bite" for cattle.

GENUS XXXVII. SECALE. *Linnæus.*

Spikelets two-flowered, the flowers sessile, distichous, perfect, with the linear rudiment of a third, terminal flower; glumes nearly opposite, nearly equal, keeled, awnless or awned; paleæ herbaceous, lower one awned, keeled, with unequal sides; upper palea shorter, two-keeled; scales two, entire, ciliate; stamens three; ovary sessile, hairy; stigmas two, subsessile; caryopsis free, hairy at summit; spikes simple, compressed, linear.

82. Secale Cereale, *Linnæus.*

Syn.—Rye.

Glumes subulate-linear and with the awns scabrous; paleæ smooth, the lower one bristly-ciliate on the keel and exterior margin. Annual; flowers in June. Culms four to six feet high. Extensively cultivated.

GENUS XXXVIII. ELYMUS. *Linnæus.*

Spikelets two to four at each joint, all fertile and alike, sessile, each one to seven-flowered; glumes two, nearly side by side in front of the spikelets; paleæ coriaceous; the lower one rounded on the back, acute or usually awned at the apex, upper one involving the grain.

83. Elymus Virginicus, *Linnæus.*

Syn.—Wild rye. Lyme grass.

Spikes rigidly upright, dense and thick, on a short peduncle, usually included in the sheath; spikelets two to three together, two or three-flowered, smooth, rather short-awned; glumes lanceolate, strongly ner[illegible]

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84. Elymus Canadensis, *Linnæus.*

Syn.—E. glaucifolius, Willd. E. Philadelphicus, Linn. Lyme grass. Rye grass.

Spikes rather loose, curved, on an exserted peduncle; spikelets mostly in pairs, of three to five long-awned, hairy flowers; the lance-awl-shaped glumes tipped with shorter awns and prominently nerved. A coarse perennial, flowering in August. Culms three to five feet high. (Plate III, fig. 10.)

85. Elymus Striatus, *Willdenow.*

Syn.—E. villosus, Muhl.

Spike dense, slender, upright or slightly nodding; spikelets mostly in pairs, minutely hairy; glumes linear-awl-shaped, or truly awl-shaped, bristle awned, about twice the length of the flowers; leaves rather narrow; sheaths smooth, or downy or hairy. This grass is a perennial, flowering in July, and growing two or three feet high.

86. Elymus Propinquus, *Fresen.*

Sheaths a little hairy; leaves flat, soft-pubescent above, smooth below; spike erect; spikelets two-flowered; glumes linear-awl-shaped, awned, nerved, shorter than the spikelets; lower palea lanceolate-oblong, concave, hairy, awned; upper one obtuse, ciliate. Probably not distinct from E. striatus.

GENUS XXXIX. GYMNOSTICHUM. *Schreber.*

Spikelets two or three on each joint, raised on a very short callous pedicel, loosely two to four-flowered; glumes none, or rudimentary.

87. Gymnostichum Hystrix, *Schreber.*

Syn.—Elymus hystrix, Linn. Asprella hystrix, Willd. A. augustifolia, Nutt. Bottle-brush grass.

Spikes upright, loose; spikelets about three-flowered; flowers

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TRIBE VIII. AVENEÆ.

Spikelets two to several-flowered, panicled, the terminal flower mostly imperfect; glumes and paleæ thin and membranaceous or chartaceous; the lower palea bearing a twisted or bent awn on the back, the upper two-nerved; stamens three; scales two.

GENUS XL. DANTHONIA. *De Candolle.*

Spikelets two to ten-flowered, the upper flowers often imperfect; glumes membranaceous, longer than the imbricated flowers; lower palea oblong or ovate, rounded-cylindraceous, seven to nine-nerved, bearing between the sharp-pointed teeth of the tip an awn, (composed of the three middle-nerves,) which is flattish and spirally twisted at the base; upper palea bicarinate.

88. Danthonia Spicata, *Beauvois.*

Syn.—Avena spicata, Linn.

Culms tufted, erect; leaves short, somewhat involute awl-shaped; sheaths bearded at the throat; panicle simple, recemelike, rather one-sided; the few spikelets appressed, seven-flowered; lower palea broadly ovate, loosely hairy on the back, much longer than the lance-awl-shaped teeth, about half the length of the awn. Perennial; flowers in July. Culms one to two feet high. Dry places. (Plate IV, fig. 1.)

GENUS XLI. TRISETUM. *Persoon.*

Spikelets two to several-flowered, mostly in a contracted panicle; lower palea compressed-keeled; two cusps at the top and an (often twisted) awn on the back; upper palea two-keeled; caryopsis smooth, without a longitudinal furrow.

89. Trisetum Palustri, *Torrey.*

Syn.—Avena palustris, Michx. Aira pallens, Muhl.

Smooth; panicle rather long and narrow, loose, the branches capillary; spikelets flat; glumes shorter than the two flowers; upper flower with a slender bent awn, lower awnless, or only mu-

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texture than the large and mostly unequal glumes, the uppermost imperfect; lower palea rounded on the back or keeled, seven to eleven-nerved, bearing a long, usually twisted awn on the back, or below the two-cleft tip, proceeding from the mid-nerve only; stamens three; grain oblong-linear grooved on one side, usually hairy, free, but generally inverted by the upper palea.

90. Avena Sativa, *Linnæus.*

Syn.—Oats.

Panicle regular; spikelets two-flowered, pendulous, pedunculate; paleæ shorter than the glumes, naked at the base. Annual; flowers in July. Culms two to four feet high. Very commonly cultivated, but only as food for horses. The native country of the oat is unknown.

GENUS XLIII. HOLCUS. *Linnæus.*

Spikelets in a contracted panicle, of two to three-flowers, pedicelled, so as to stand side by side, shorter than the mucronate and membranaceous glumes; lower flower perfect with three stamens, awnless; upper one staminate, or neuter, the lower palea awned on the back, below the middle.

91. Holcus Lanatus, *Linnæus.*

Syn.—Meadow soft-grass.

Soft-downy, pale; panicle oblong; upper glume mucronate under the apex; awn of the staminate flower recurved, seeds ovate, smooth, covered with a soft, woolly husk. Perennial; flowers in June. Culms one to two feet high. A native of Europe, from whence it is supposed to have been introduced into this country.

TRIBE IX. PHALARIDEÆ.

Spikelets more or less panicled, somewhat three-flowered, with the middle floret only perfect; the lower and terminal (or the apparently lateral) ones imperfect, either staminate, rudimentary or neutral; or sometimes the terminal floret perfect, and the two lower ones imperfect.

GENUS XLIV ANTHOXANTHUM. *Linnæus.*

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outside and awned on the back; the central one perfect, or of two awnless paleæ, and two stamens; glumes very thin, acute, keeled; the upper part about as long as the flowers, twice the length of the lower; scales none; grain ovate, adherent to the inclosing paleæ.

92. Anthoxanthum Odoratum, *Linnæus.*

Syn.—Sweet-scented vernal-grass.

Panicle spiked, the spikelets spreading; one of the neutral flowers bearing a bent awn from near its base, the other short-awned below the tip. Perennial; flowers in May, June and July. Culms twelve to eighteen inches high. Introduced from Europe and naturalized, but seldom cultivated. A very valuable grass, emitting a very pleasant fragrance when newly cut, and well deserving of more attention from farmers than it has received.

GENUS XLV. PHALARIS. *Linnæus.*

Spikelets crowded in a dense panicle, three-flowered; but the two lateral flowers mere neutral rudiments at the base of the perfect one, which is flattish, awnless, of two shining paleæ, shorter than the equal boat-shaped glumes, finally coriaceous, shining and closely inclosing the flattened, free and smooth grain; stamens three; leaves broad flat.

93. Phalaris Arundinacea, *Linnæus.*

Syn.—P. Americana, Torrey. Calamagrostis colorata, Nutt. Reed Canary-grass.

Panicle more or less branched, clustered, a little spreading when old; glumes obtusely keeled, with flattened pointed tips, the lower one fringed on the margin below the middle; rudimentary flowers cartilaginous, hairy, one-eighth the length of the fertile ones. Perennial; flowers in July. Culms two to four feet high. Native also of Europe. The "ribbon-grass" of the gardens is a cultivated variety of this species. (Plate IV, figure 2.)

94. Phalaris Canariensis, *Linnæus.*

Syn.—Canary-grass.

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Panicle spiked oval; glumes wing keeled; rudimentary flow-

the grass possessing but little nutriment. It is a great impoverisher of the soil.

TRIBE X. PANICEÆ.

Spikelets two-flowered, the lower imperfect; glumes and sterile paleæ herbaceous or membranaceous; paleæ of the fertile flower of firmer texture, coriaceous or chartaceous, awnless, not keeled, flattened, parallel with the glumes.

GENUS XLVI. PASPALUM. *Linnæus.*

Spikelets spiked or somewhat racemed in two to four rows on one side of a flattened rachis, jointed with their shortened pedicels, plano-convex, awnless, apparently but one-flowered; lower flower neutral, of a single membranaceous, awnless palea, as long as the glume; perfect flowers, with two coriaceous awnless paleæ, the lower concave, and embracing the upper one; stamens three.

95. Paspalum Fluitans, *Kunth.*

Syn.—P. mucronatum, Muhl. Ceresia fluitans, Elliott.

Stem creeping and ascending, much branched, often floating; leaves scabrous; spikes numerous, (ten to twenty-five;) glumes white, dotted, a little hairy. Annual; flowers in September and October. Culms one to two feet long. Grows in wet muddy places.

96. Paspalum Setaceum, *Michaux.*

Syn.—P. debile, Mich. P. ciliatifolium, Mich.

Clums slender; leaves and sheaths clothed with soft spreading hairs; spikes very slender, smooth, mostly solitary on a long peduncle, and usually one from the sheaths of each of the upper leaves, on short peduncles or included; spikelets narrowly two-rowed. A perennial grass, growing in sandy places and flowering in August. Culm one to two feet high.

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97. Paspalum Læve, *Michaux.*

two-rowed. Grows to the height of from one to three feet; flowering in August and September. (Plate IV, fig. 3.)

GENUS XLVII. PANICUM. *Linnæus.*

Spikelets sometimes spiked or racemose, usually panicled; glumes unequal, the lower one short, minute or wanting; lower flower neutral or staminate, rarely awned, mostly consisting of a single palea, which resembles the upper glume; upper floret perfect, coriaceous, inclosing the free and groveless grain; stamens three; stigma plumose, usually purple.

§ 1. *Spikes linear, unilateral; digitate, fasiculate or paniculate; flowers unawned; neutral floret with a single palea; glume minute or wanting* (DIGITARIA, *Scop.*)

98. PANICUM FILIFORME, *Linnæus.*

SYN.—Digitaria filiformis, Beauv. Paspalum filiforme, Flugge.

Culms erect, very slender; spikes two to eight, filiform, alternate and approximated, thread-like; lower glume wanting; leaves narrow; spikelets all distinctly pedicelled, oblong, acute. An annual grass; flowering in August, and growing from one to two feet high.

99. PANICUM GLABRUM, *Gaudin.*

SYN.—Digitaria glabra, Rœm. & Schultes. D. humifusa, Pers. D. ischæmum, Schreb.

Culms smooth, procumbent, and spreading, rarely rooting; spikes two, somewhat alternate-clustered; upper glume nearly as long as the flower. An introduced species, growing one or two feet high and flowering in August.

100. PANICUM SANGUINALE, *Linnæus.*

SYN.—Digitaria sanguinalis, Scopol. Syntherisma præcox, Walt. Crab-grass, Finger-grass, Crop-grass, Crow's-foot, &c.

Culms geniculate, decumbent and rooting at the base; spikes four to eight or te[illegible] digitate-cl[illegible] upper glume shorter than

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101. Panicum Agrostoides, *Sprengel.*

Syn.—P. elongatum, Pursh. P. agrostidiforme, Lam. P. multiflorum, Poir.

Culms upright, compressed; leaves elongated; panicle pyramidal; spikelets ovate-oblong, acute; upper glume five-nerved; leaves long, and with the sheaths smooth. Grows two or three feet in height; perennial; flowers in July.

102. Panicum Proliferum, *Lamarck.*

Syn.—P. miliaceum, Walt. (Not of Linn.) P. geniculatum, Muhl.

Smooth; culms rather stout and succulent, geniculate, ascending or procumbent; spikelets lance-oval, appressed; neutral flower with a single palea, little longer than the perfect one. Annual; flowers in September. Culms one to two feet long.

103. Panicum Capillare, *Linnæus.*

Panicle capillary, large, loose; the branches finally divaricate; neutral flower with a single palea, which is longer than the perfect one; sheaths hirsute; spikelets lanceolate, acuminate, scattered on long pedicels; culms upright. Annual; flowers in August; Culms six inches to two feet high. Apparently introduced; grows among cultivated crops and on waste grounds.

104. Panicum Autumnale, *Bosc.*

Syn.—P. dichotomiflorum, Michx?

Culms very slender, upright, branching below; the small leaves and upper sheaths glabrous; panicles strongly bearded in the axils, the branches capillary, elongated, mostly simple; spikelets spindle-shaped; lower glume minute; perfect flower narrowly oblong or lance-oblong, acute, nearly equaling the upper glume

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106. Panicum Latifolium, *Linnæus.*

Syn.—P. Walteri, Poir.

Culm smooth, simple; nodes hairy; leaves broadly oblong-lanceolate; panicle more or less exserted, the branches spreading; spikelets obovate, downy; lower glume ovate, not half the length of the many-nerved upper one. Perennial; flowers in June. Culms one to two feet high.

107. Panicum Clandestinum, *Linnæus.*

Syn.—P. pedunculatum; Torrey.

Culm leafy at the top, rigid, the nodes naked; sheaths rough with papillæ, bearing spreading, bristly hairs; leaves oblong-lanceolate; panicle partly or entirely inclosed in the sheaths. Perennial; flowers in July and August. Culms one to three feet high.

108. Panicum Microcarpon, *Muhlenberg.*

Culms smooth, the joints and throat of the sheaths bearded; leaves broadly oblong-lanceolate, not dilated at the rounded bristly-ciliate base, very rough margined, the upper surface roughish; panicle soon exserted on a slender peduncle very many-flowered, narrowly oblong; spikelets ovoid smooth or smoothish; lower glume orbicular and very small. Resembles P. latifolium, but the leaves are longer in proportion, and less pointed. Perennial; flowers in July; grows one or two feet high in dry or moist thickets.

109. Panicum Xanthophysum, *Gray.*

Culm simple, at length branched near the base; sheaths hairy; leaves lanceolate, very acute, not dilated at the ciliate bearded clasping base, smooth, except on the margin, strongly nine to eleven-nerved; panicle long-peduncled, simple, contracted, the appressed branches bearing roundish-obovate spikelets; lower glume ovate, acutish, [illegible] third to [illegible] half the length of the nine-

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with long and stiff spreading hairs, the sheaths bristly throughout with similar hairs; panicle open, nearly simple, bearing fine tumid obovate spikelets. A perennial species; flowering in June and July; culms one to two feet high.

111. Panicum Dichotomum, *Linnæus.*

Syn.—P. nitidum, Lam. P. barbulatum and P. ramulosum, Michx. P. nodiflorum, P. pubescens and P. laxiflorum, Lam.

Culms at first mostly simple; leaves lanceolate, flat, with few or indistinct nerves; panicle compound, spreading, exserted; spikelets minute, on long peduncles, obovate, mostly pubescent, lower glume roundish, one-fourth to one-third the length of the five to seven-nerved upper one. This species assumes several different varieties. Perennial, flowering from June to August, and growing from eight to twenty inches high. (Plate IV, fig. 4.)

112. Panicum Depauperatum, *Muhlenberg.*

Syn.—P. rectum, Rœm. and Schul. P. involutum, Torr. P. strictum, Ph.

Culms simple or branched from the base, growing in close tufts; panicle contracted, few-flowered, simple; leaves narrowly linear, elongated, extending above the culms; spikelets small, oval-obovate, pedunculate, rather acute, smoothish; lower glume ovate, one-third the length of the nine-nerved upper one. Perennial; flowers in June. Culms eight to fifteen inches high.

113. Panicum Crus-galli, *Linnæus.*

Syn.—Echinochloa crus-galli, Beauv. Oplismenus crus-galli, Kunth. P. hispidum, Muhl. P. Walteri, Ph. (Not of Muhl. and Ell.) P. longisetum, Torr. Barn yard grass.

Spikelets imbricated-spiked, on the branches of a raceme or panicle, rough with appressed or stiff hairs; lower palea of the sterile flower awl-pointed or awned; spikes alternate and in pairs; rachis bristly; sheaths smooth; ligules none. Annual; flowers in August and September. Culms two to four feet high.

The Barn yard grass is a coarse species, introduced from Europe; but we have at least two varieties that are native, one

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GENUS XLVIII. SETARIA. *Beauvois.*

Spikelets two-flowered, with a cluster of several distinct bristles, resembling awns; glumes two, unequal, membranaceous; lower flower staminate or neuter; paleæ one or two, the outer one resembling the glume in texture; upper flower perfect, coriaceous; inflorescence a dense simple or compound, spike-like panicle.

114. Setaria Glauca, *Beauvois.*

Syn.—Panicum glaucum, Linn. Pennisetum glaucum, R. Brown. Bottle-grass.

Spike cylindrical, very dense; (tawny yellow,) bristles six to eleven in a cluster, barbed upwards, very much longer than the spikelets; perfect flowers transversely wrinkled. Annual; flowers in August. Culms two to three feet high. Introduced. Native of Europe, Asia and New Holland. (Plate IV, fig. 5.)

GENUS XLIX. CENCHRUS. *Linnæus.*

Spikelets two-flowered, solitary, in pairs, or more, inclosed in a cleft, spiney or bristly involucre, which becomes coriaceous, forming a deciduous burr in fruit; the involucre sessile in a terminal spike; styles united below; glumes two, unequal, membranaceous; lower flower staminate or neutral, with one or two paleæ.

115. Cenchrus Tribuloides, *Linnæus.*

Syn.—C. echinatus, Mühl. (Not of Linn.) C. Carolinensis, Waltr.

Culms ascending, branching at the base; leaves flat; spike oblong, composed of eight to ten spherical heads; involucre prickly all over with spreading, downwardly-barbed, short spines, inclosing two or three spikelets. Annual; flowers in August. Culms nine to eighteen inches high. A pestilent weed.

TRIBE XI. SACCHAREÆ.

Fertile paleæ membranaceous or scarious, always of thinner and more delicate texture than the (often incurated) glumes, frequently awned from the tip; spikelets usually in pairs or threes, panicled or spiked, some of them entirely sterile.

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GENUS L. ZEA. *Linnæus.*

subequal; paleæ membranaceous, awnless, obtuse; the pistillate spikelets two-flowered, the lower one abortive; glumes two, very obtuse; paleæ awnless; style one, filiform, very long, pendulous; caryopsis compressed.

116. Zea Mays, *Linnæus.*

Syn.—Corn. Indian corn. Maize.

Leaves flat, linear-lanceolate, acuminate, entire with a broad, thickish midrib channeled above. Annual; flowers in July; ripens in September and October. Culms five to ten feet high. Very extensively cultivated.

All the different kinds of maize cultivated in this country are but varieties of this species, agreeing with the essential specific character.

GENUS LI. TRIPSACUM. *Linnæus.*

Spikelets sessile, on jointed spikes, the staminate flowers above; staminate spikelets in pairs, longer than the joint, the flowers with two paleæ and three stamens; anthers orange-colored; pistillate spikelets single, two-flowered, deeply imbedded in the thickened rachis, covered by the polished ovate outer glume; style long, stigmas very long, plumose, dark purple; grain ovoid free.

117. Tripsacum Dactyloides, *Linnæus.*

Syn.—Gama-grass. Sesame-grass.

Spikes usually two together, with the contiguous sides flat, the upper half staminate culms cæspitose, hard, smooth, solid with pith; leaves very long. Perennial; flowers in July. Culms three to six feet high.

A very remarkable grass, about which much was said a few years ago, but which proved to be of but little real value. It is used as fodder for stock.

GENUS LII. ERIANTHUS. *Michaux.*

Spikelets spiked in pairs on each joint of the rachis; one of them sessile, the other pedicelled, otherwise both alike; lower flower neutral, of one palea; upper flower perfect, of two hyaline paleæ.

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118. Erianthus Alopecuroides, *Elliott.*

Syn.—Andropogon alopecuroides, Linn. Saccharum giganteum, Pers. Erianthus saccharoides, Michx. E. giganteus, Muhl.

Culm wooly-bearded at the joints; panicle contracted; the silky hairs longer than the spikelets, shorter than the straight awn; at length contorted, stamens two. A large coarse grass, (four to six feet high;) perennial; flowering in September.

119. Erianthus Contortus, *Baldwin.*

Syn.—Saccharum, contortum, Nuttall.

Culms bearded at the joints; panicle closely appressed; hairs as long as the glumes; upper palea auriculated; awn spirally contorted, formed by the junction of two lateral nerves. A perennial; growing four or five feet high; flowering in September.

GENUS LIII. ANDROPOGON. *Linnæus.*

Spikelets in pairs on each joint of the slender rachis, spiked or racemed; one pedicelled; often a mere vestige; the other sessile with the lower flower neutral and of a single palea; the upper perfect, fertile, of two thin paleæ shorter than the glumes, the lower awned from the tip; stamens one to three; grain free; rachis hairy or plumose-bearded.

120. Andropogon Furcatus, *Muhlenberg.*

Culms and leaves nearly smooth; spikes three to five, digitate, straight, rigid; spikelets approximated, roughish downy; awn bent; sterile flowers staminate, awnless. A rigid perennial; growing about four feet high, and flowering in September. (Plate IV, fig. 6.)

121. Andropogon Scoparius, *Michaux.*

Syn.—A. purpurascens, Wild. Pollinia separia, Spreng. Broom-grass.

Culms slender, with many branches; lower sheaths and narrow leaves hairy; spikes terminating the branches, very loose, slender, simple; sterile spikelet neutral, its lower glume awned, small, on a very hairy pedicel, the fertile with three stamens and a twist-

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low, sparingly short-branched above; sheaths smooth; spikes two or three together, in distant appressed clusters. A perennial; flowering in September, and growing about three feet high.

GENUS LIV. SORGHUM. *Persoon.*

Spikelets two or three together, on the branches of an open panicle, the lateral ones sterile; glumes of the middle or fertile spikelet coriaceous, or indurated, sometimes awnless; stamens three.

123. Sorghum Vulgare, *Persoon.*

Syn.—Holcus sorghum, Linn. H. dura, Forsk. Andropogon sorghum, Brot. Dhurra Corn.

Culms stout reed-like; nodes pubescent; sheaths smooth; leaves smooth, serrulate-scabrous on the margin; panicle erect, oblong, somewhat contracted, much-branched, the branches pubescent-hairy; rachis smooth, or a little hairy; glumes of the fertile flowers, obovate, pubescent; pedicels hairy. Annual; flowering in August; grows five to nine feet high. Extensively cultivated in the East Indies, Africa, &c., where it is used as a bread-corn, and is said to be quite equal in nutricious value to wheat, yielding a beautiful white flour. It is also cultivated in the West Indies and in our southern states.

124. Sorghum Saccharatum, *Persoon.*

Syn.—Holcus saccharatus, Linn. Andropogon saccharatus. Roxb. Broom Corn.

Culms erect, stout, terete; nodes tumid, with a ring of short appressed hairs at the base of the sheaths; leaves densely pubescent at the base next the ligules; ligules short, ciliate; panicle large, open; branches long, naked below, rough-pubescent, loosely expanding, arranged in remote verticils, at last nodding; spikelets sessile, in racimose clusters near the extremities of the branches; glumes clothed with glossy, appressed hairs; paleæ of the fertile flowers three, of the neutral flowers one; pedicels and flowers of nearly equal length; stigmas yellowish green. Annual; flowers in August; grows six to nine feet high. Extensively cultivated for brooms and for food for poultry.

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125. Sorghum Nigrum, *Roemer & Schultes.*

smooth, shining denticulate and pubescent at the apex; seeds blackish. Annual; flowering in September, grows six to eight feet high. A native of China, where it is called "sugar cane of the north." It was introduced a few years since into France, and thence into this country, as a substitute for the sugar cane. It is now attracting considerable attention, and its value will soon be tested.

126. Sorghum Cernuum, *Willdenow.*

Syn.—Holcus cernuus, Willd. Andropogon cernuus, Roxb. Guinea Corn.

Culms erect, the lower nodes emitting verticillate rootlets; panicle densely contracted, oval, rigidly recurved or nodding, the branches compound; glumes villose, fringed; paleæ three, fringed, the lower one awned. Annual, biennial, and perennial; growing from five to eight feet high, and flowering in August. A native of the East Indies. Cultivated as food for poultry.

127. Sorghum Bicolor, *Willdenow.*

Syn.—Holcus bicolor, Linn. Andropogon bicolor, Roxb. Chocolate Corn.

Culms erect, panicle diffuse, spreading, open, decompound, or super-decompound, the branches rigid, flexuous, angular, rough on the edges; glumes of the fertile flowers at last black, ovate-acutish, smooth on the back, fringed on the margin, paleæ, three, awned; glumes of neutral flower hairy, paleæ, two. Annual, biennial and perennial. A native of the East Indies, Persia, &c. Cultivated. The grain has been used as a (very poor) substitute for chocolate or coffee.

*** It is possible that the five preceding species should be reduced to varieties of one or two species.

128. Sorghum Nutans, *Gray.*

Syn.—Andropogon nutans, Linn. A. avenacens, Michx. Indian grass. Wood grass.

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EXPLANATION OF THE PLATES.

PLATE I.

Fig. 1. Leersia Virginica, Willd. *a*—Branch of the panicle. *b*—Spikelet. *c*—Spikelet, opened. *d*—Stamens and pistil. *e*—Part of the stigma, highly magnified. *f*—Seed. *g*—Surface of the upper palea highly magnified.

Fig. 2. Zizania aquatica, Linn. (Wild rice.) *a*—The fertile flower. *b*.—The staminate flower. *c*—Pistil. *d*—Scales. *e*—Part of the awn magnified. *f*—Seed, (natural size.) *g*—Part of the stigma and a grain of pollen, highly magnified.

Fig. 3. Alopecurus aristulatus, Michx. *a*—The spiked panicle or head. *b*—Spikelet. *c*—Stamen, after it has opened and discharged the pollen. *d*—Lower palea and awn. *e*—Pistil.

Fig. 4. Phleum pratense, Linn. (Timothy.) *a*—Spikelet. *b*—Lower palea. *c*—Stamen. *d*—Cross section of a portion of the tuber, showing the hexagonal cells and a bundle of woody fibers. *e*—Longitudinal section of the same. *f*—One of the woody fibers, more highly magnified to show the markings, supposed to be openings of the inner lining of the cell.

Fig. 5. Vilfa vaginiflora, Trinius. *a*—Branch of the panicle. *b*—Spikelet. *c*—Paleæ.

Fig. 6. Sporobolus heterolepis, Gray. *a*—Branch of the panicle. *b*—Spikelet. *c*—Stamens and pistil.

Fig. 7. Agrostes scabra, Willd. *a*—A branch of the panicle. *b*—Spikelet. *c*—Paleæ. *d*—Pistil and one of the stamens. *e*—Scale.

Fig. 8. Cinna arundinanceæ, Linn. *a*—Branch of the panicle. *b*—Spikelet, opened. *c*—Pistil.

Fig. 9. Muhlenbergia Willdenovii, Trin. (Nimble Will.) *a*—Branch of the panicle. *b*—Spikelet. *c*—Palea. *d*—Pistil. *e*—Scale. *f*—The running root-stalk.

Fig. 10. Brachyelytrum aristatum, Beauv. *a*—Part of the panicle. *b*—Spikelet.

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PLATE I.—ORYZOIDEÆ. PHLEOIDEÆ. AGROSTOIDEÆ.

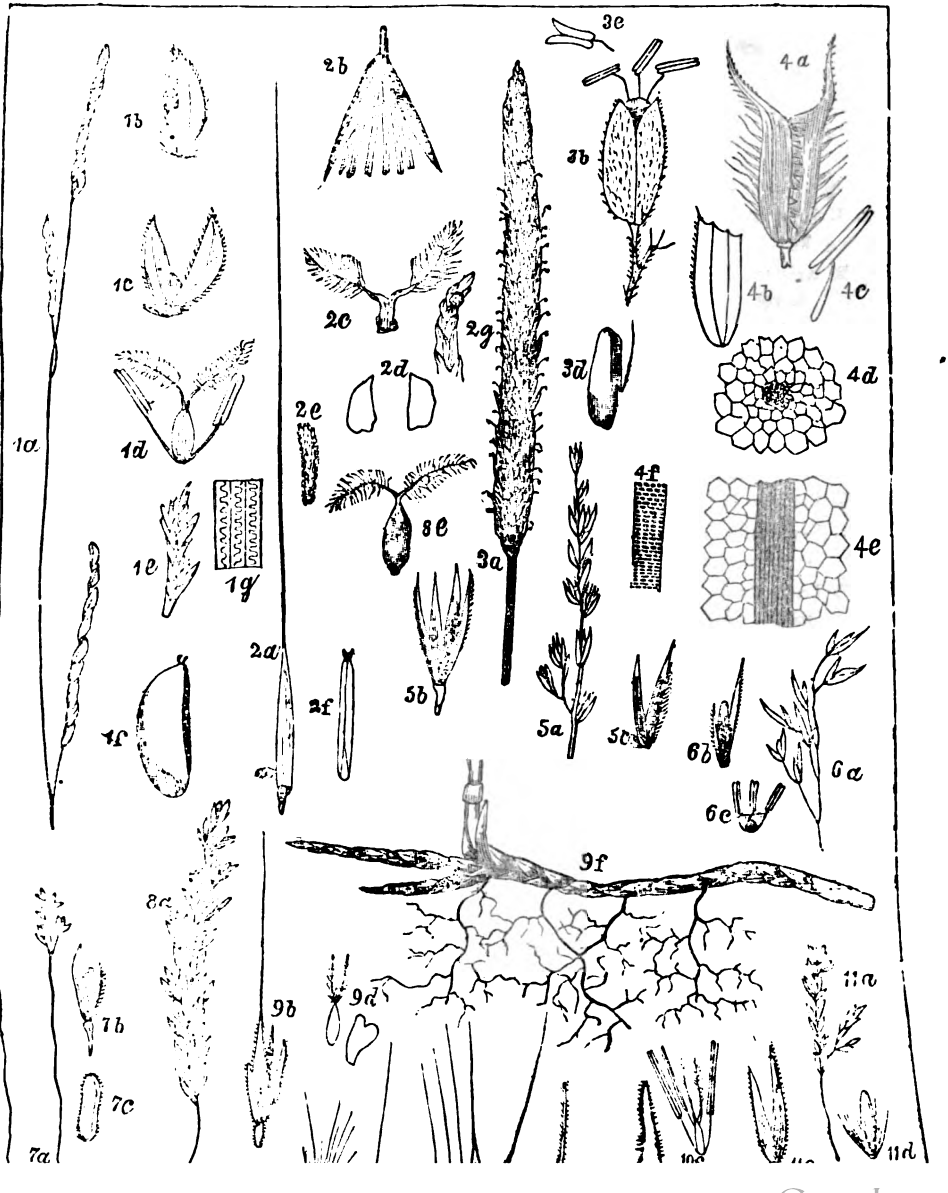

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Fig. 1. Stipa
awn.

Fig. 2. Aristid
flowe
lina g

Fig. 3. Spartin
mens.

Fig. 4. Boutel
c—U
palea.

Fig. 5. Eleusin

Fig. 6. Septoc
c—L

Fig. 7. Tricusp
palea.

Fig. 8. Diarrh
c—U
palea.

Fig. 9. Dactyl
openc

Fig. 10. Eator

Fig. 11. Glyce
per

Fig. 12. Poa
and
seed

Fig. 13. Eragr
Spik
root
draw

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PLATE II.—STIPACEÆ. CHLORIDEÆ. FESTUCINEÆ.

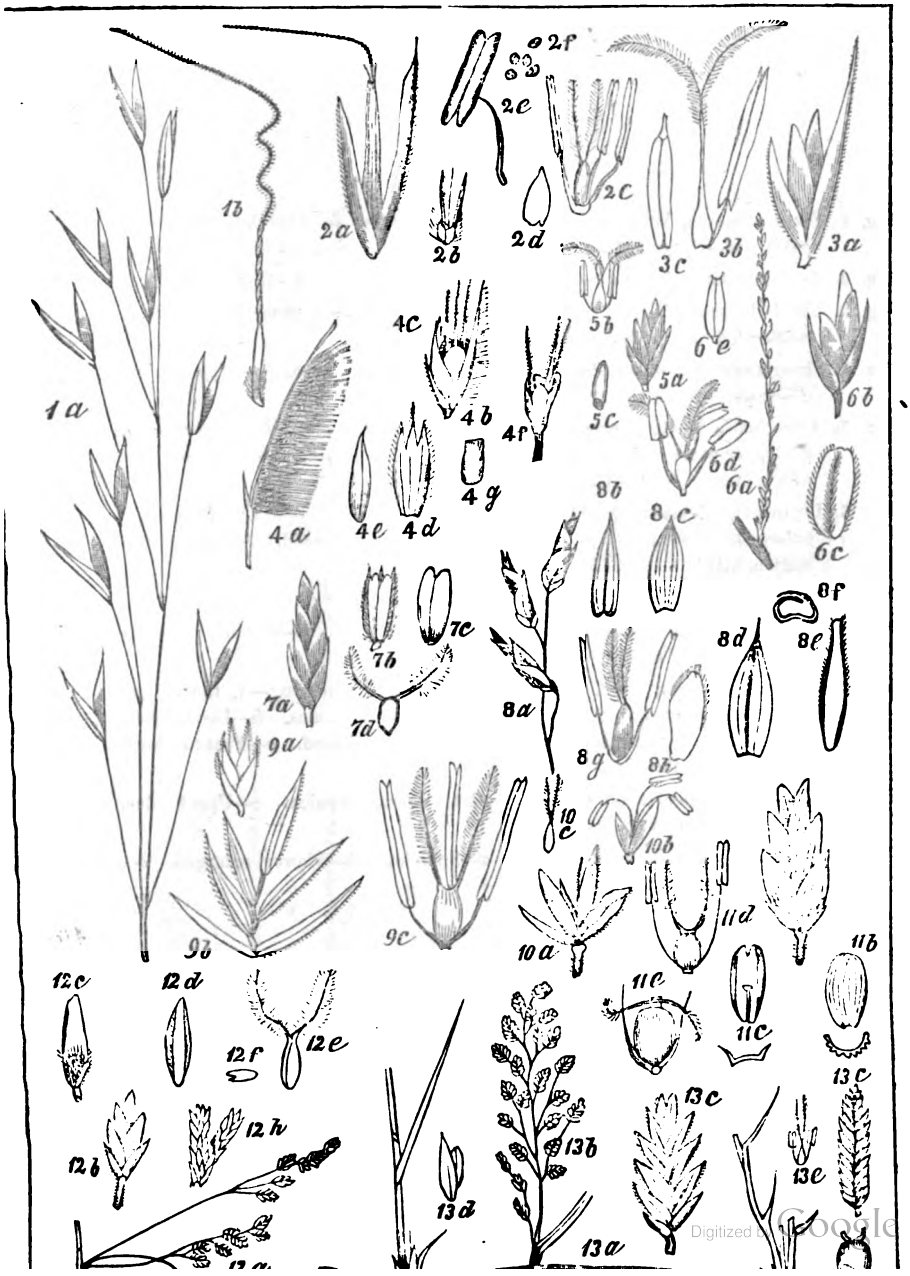

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PLATE III.

Fig. 1. Festuca nutans, Willd. *a*—Branch of the panicle. *b*—Spikelet. *c*—Lower palea. *d*—Upper palea. *e*—Stamens and pistil. *f*—Plan of the flower.

Fig. 2. Bromus ciliatus, Linn. *a*—Spikelet. *b*—Lower palea. *c*—Upper palea.

Fig. 3. Uniola latifolia, Michx. *a*—Spikelet. *b*—Upper palea, stamens and pistil. *c*—Section of upper palea and seed.

Fig. 4. Phragmites communis, Trin. *a*—Glumes. *b*—Lower palea. *c*—Upper palea. *d*—Scale. *e*—Flower and hairy pedicel. *f*—Pistil.

Fig. 5. Arundinaria macrosperma, Michx. (Cane.) *a*—Spikelet. *b*—Lower palea. *c*—Upper palea and section. *d*, *d*, *d*—The three scales. *e*—Pistil and part of a stamen. *f*—Anther.

Fig. 6. Lepturus paniculatus, Nutt. *a*—Branch of the panicle. *b*—Part of the same enlarged. *c*—Spikelet. *d*—Stamens and pistil. *e*—Seed. *f*—Part of the stigma, highly magnified.

Fig. 7. Lolium perenne, Linn. (Ray grass.) Spike or head.

Fig. 8. Triticum repens, Linn. (Couch grass.) *a*—Spikelet. *b*—Glume. *c*—Stamens and hairy germ. *d*—Scale.

Fig. 9. Hordeum jubatum, Linn. *a*—A joint of the rachis showing—1, the glumes of the fertile flowers; 2, abortive flowers; 3, their glumes. *b*—Lower palea. *c*—A flower. *d*—Stamen. *e*—Pistil. *f*—Back of seed. *g*—Front of seed. *h*—Section of the seed.

Fig. 10. Elymus Canadensis, Linn. *a*—Spikelet. *b*—Lower palea. *c*—Upper palea. *d*—Plan of palea and seed.

Fig. 11. Gymnostichum hystrix, Schreb. *a*—Spikelet. *b*—Flower enlarged. *c*—Stamens and germs.

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PLATE III.—FESTUCACEÆ. HORDEINEÆ.

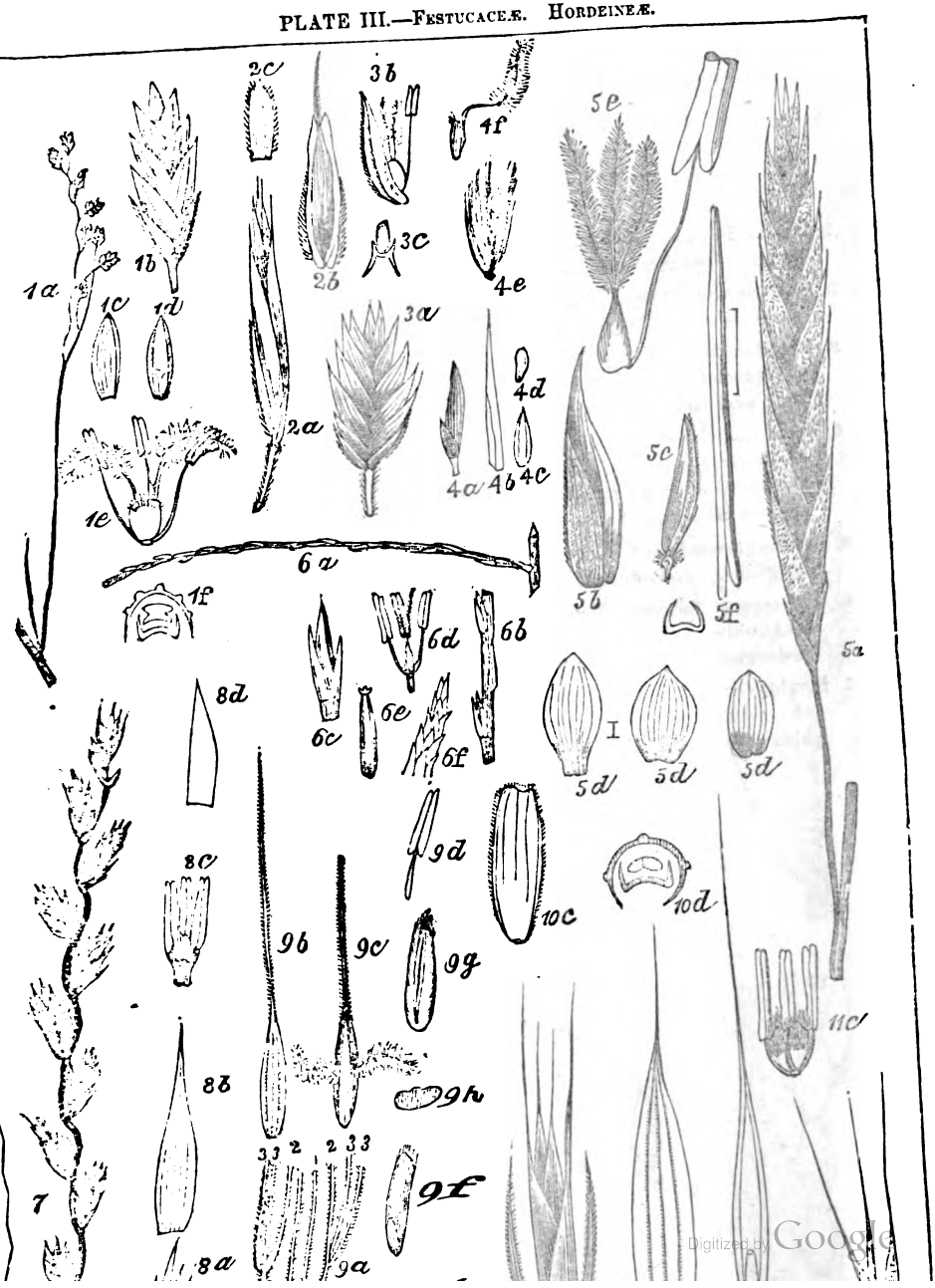

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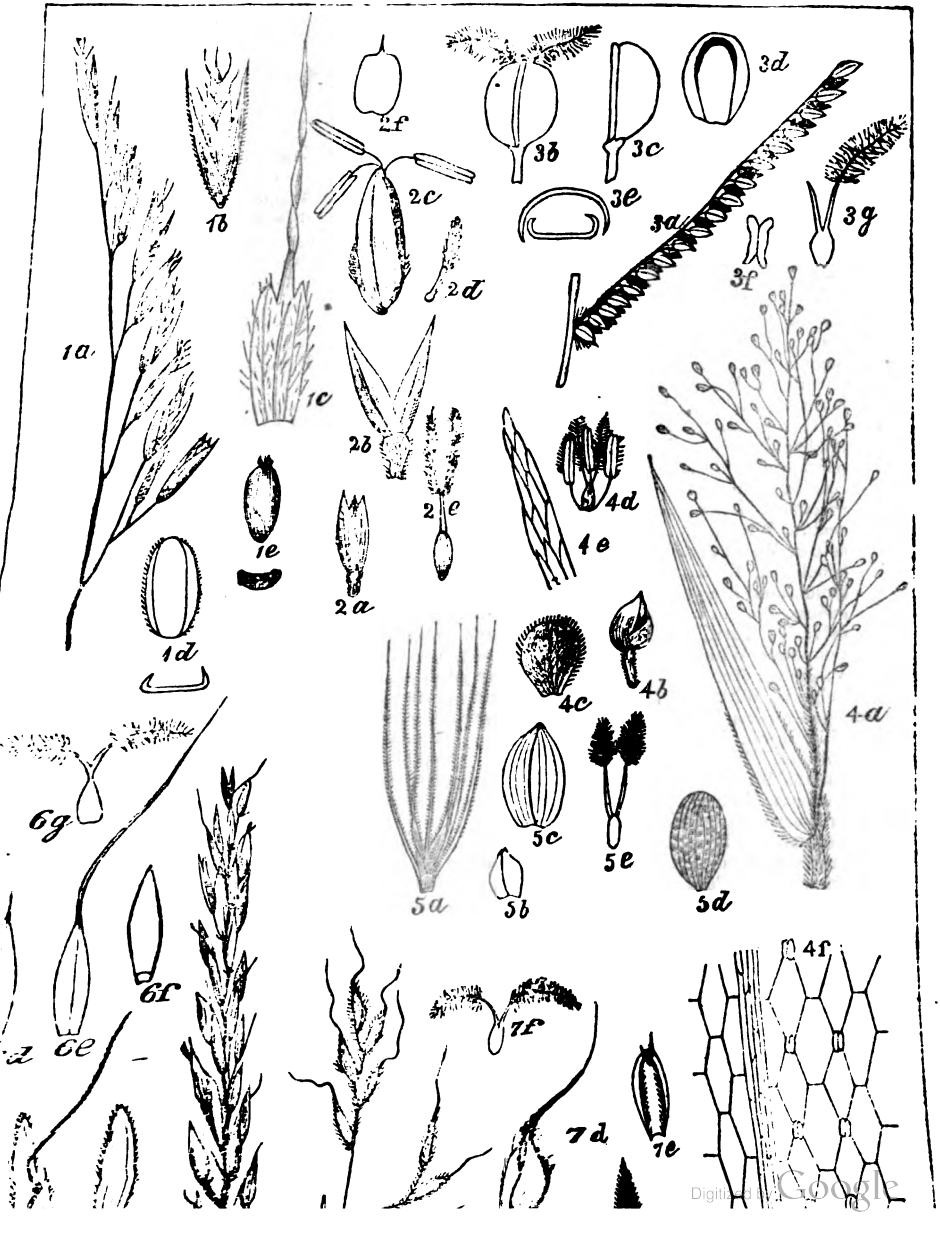
PLATE IV.—AVENACEÆ. PHALARIDEÆ. PANICACEÆ. SACCHAREÆ.



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Wild rye,....
Windsoria pos
Wire-grass,..
Wood grass,..
Yard grass,..
Zea mays, Lin
Zizania aquati
clavulo

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THE QUADRUPEDS OF ILLINOIS,

INJURIOUS AND BENEFICIAL TO THE FARMER.

By Robert Kennicott, of West Northfield.

[Natural history, or natural truth, is the basis of agricultural science; and yet, in some of its most applicable divisions, there is little knowledge of it on the farm, and few or no text books suited to the wants and abilities of the ordinary farmer. To meet this state of things, agricultural societies have resorted to the publication of popular essays, in their state Transactions. That of New York appropriates one thousand dollars annually, for a report on noxious and useful insects, alone; and with far greater facilities—though perhaps less favored in some things, than the United States patent office—is doing a good work in the same direction; and has just now laid us under particular obligations for the means of re-producing this paper. But let not the reader suppose, from this fact, that our society has been unmindful of these special wants; for it was proposed that you should have the benefit of an abridgement of this very article, and its continuation, (only a part having been put in print this year) and an arrangement to that end was made with the author, and reported to our legislature. But circumstances, needless to specify, prevented the execution of this design, and proof sheets, and duplicates of plates from the patent office, being kindly offered, free of expense to the society, the editor could not well neglect so legitimate an opportunity of partially carrying out the original intention, in regard to a treatise on the *animals* of the state, to accompany the admirable contributions to its general and special botany. And we are more confident in the propriety of this secondary action, from knowing that the life-like illustrations of "The Quadrupeds of Illinois," were prepared, and the text revised, under direction of the Smithsonian Institution, and by its officers and artists. And were this the proper place, we might attempt some expression of our high appreciation of the apparent policy of this great school of natural science—which, in the discovery and application of new truths and liberal aid given to those who study nature in the field, has certainly had the interests of agriculture more in view than is generally supposed.]—*Ed.*

[FROM THE PATENT OFFICE REPORT.]

However injurious wild animals may be to man, he should not forget that he himself is very often the cause of their undue de-

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these, while those having few enemies are not prolific. Man interferes unwisely, and the order is broken. It is true that, to some extent, an interference with the natural regulations of the animal creation is necessary to the progress of civilization. Man appropriates to himself the food of many animals, but as they continue to devour this wherever found, he must therefore sometimes destroy them or lose his property.

But, before waging war upon any animal, let us study its habits, and look well to the consequences which would follow its extermination. We must remember that it is an undeniable fact, that the dangerous increase of any species is due to the destruction of its natural enemies; and, indeed, would we stop the ravages of a vegetable eating animal, the easiest and most certain way generally is to encourage the increase of these enemies.

But some men think animals unworthy of study, and do not know the injurious from the beneficial. A farmer's poultry has been killed by some carniverous mammals or birds, and he therefore destroys every one of these, large or small, indiscriminately, whether found about his farm-yard or out in the fields. Some birds injure his crops, and so every bird that ever ate a grain of corn is shot, while many, which are not known to do any harm, are killed lest they should; and his boys are hence encouraged to destroy blackbirds' nests, and they very naturally extend their destructiveness to every other bird's nest they can find. The meadow-mice are injurious, and he accordingly wages war upon the shrews and moles, which he confounds with the mice, or accuses of performing their work. He knows some snakes are venomous, and so pronounces all reptiles "deadly" and "horrible things," to be dreaded and destroyed. His crops are affected by insects, and he eagerly kills the carniverous species with the others. And then the gnawing mammals kill his trees and destroy his crops, and the insects multiply alarmingly, and he wonders "why such worse than useless creatures were created!"

A more careful study of animals would surely benefit our farm-

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ture's truths; and the interest will increase in proportion to the knowledge gained. Every farmer's son and daughter should be naturalists; they have the best of opportunities for it. A few minutes spent at the right time would often reveal to them facts which naturalists have labored days in vain to discover. Workmen in the field have frequently passing under their eyes things which the naturalist would travel miles to see; and they daily and hourly witness things it would profit them much to observe. A farmer eagerly kills a harmless snake, and thinks he has done well. But it is not so. Let him examine its mouth, and he will find no poison fangs there; and if he opens its stomach, it will usually be found to contain only insects, or, perhaps, meadow-mice. It takes but a moment to observe these things, yet, if he uses well the knowledge gained in this moment, it may prove to him of great value.

Farmers must not suppose that in order to study animals profitably, they are obliged first to read scientific books. These are of much importance, but not all that is to be observed. A knowledge of the scientific names of species is of great value, enabling any one to learn the habits of animals not well known, from others, or from books, and to communicate facts observed by himself, while the imperative necessity for a system of scientific names in any extended study of natural history is too apparent to need comment. Common names may be used locally in conversation, or written, for want of better; but numerous misapplications and errors are sure to result. Farmers may be—and, to their credit, be it said, many are—well acquainted with the habits of the animals about them, even though they know nothing of scientific names. These, however, by careful observation, have learned to distinguish certainly and readily each animal, and are not likely to consider moles, shrews, and meadow-mice as one and the same.

Let any farmer spend a few leisure half hours in observing the habits of animals, and then ask himself if the time thus spent has been wasted. True, he may not always have been in any way pecuniarily benefitted; but many [illegible] days realize a desire for

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SQUIRRELS.

The true squirrel is arboreal. His home is in the trees, and his legitimate food their fruits and buds. Should he go to the ground, it is only in search of food; and, this obtained, he returns to his airy dwelling-place. Here, in summer, he builds him a nest of leaves taken from the branches at hand, and in a hole in the same tree, or in one that he can attain by springing from branch to branch, without going to the ground, he has a more secure retreat, to which he can retire during inclement weather, or to escape the attacks of an enemy, and in which the young are generally reared.

This class of squirrels possesses a muscular but light and graceful form, with the toes long and the nails strong and sharp, by which they are enabled to climb trees and take long leaps among the branches with wonderful ease. In these leaps, they are also aided by their large and bushy tails, which serve as rudders to steer by. They use their fore feet as hands, seizing their food with them, and stand upon their hind feet when eating. On the ground, they either run or move by springs made mainly by their hind legs. Unlike most of the order, they move about by day and keep in their retreats at night, to which they also retire for a few hours during the middle of the day. Though their food is properly vegetable, squirrels are known to eat insects. By a slighter departure from their natural food, they exhibit a fondness for corn, and more rarely wheat and other grains, which is highly prejudicial to their good standing in a community of farmers. In fact, these animals are frequently much more injurious than is generally known. In certain districts, whole fields of corn are destroyed by them at times, while it is a common thing to find considerable tracts lying near the woods not worth harvesting, because of their depredations. So serious was the result of their ravages at one time, in the eastern states that, as related by Pennant, in the year 1749, £8,000 were paid out of the treasury of Pennsylvania in premiums for the destruction of squirrels. The premium

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ing's entertainment at the wayside or village inn. These hunts are kept up from one to three days, and the quantities of squirrels sometimes shot—without estimating those purchased for the occasion by eager but unfair members of the company—would seem incredible to persons not residing in localities where they abound.

Squirrels at times form a valuable addition to our food. There is a foolish prejudice existing among many against eating them; but a young squirrel, properly cooked, makes a delicious morsel, and old ones are far from unpalatable, when fat. Their flesh is certainly more healthful and delicate than that of so unclean an animal as the hog, which, nevertheless, frequently is preferred. Great numbers are sold in our city markets, and usually at low prices. In winter thousands of migratory, Carolina and fox-squirrels are bought up by purchasers of provisions throughout Indiana, Michigan, and Illinois, and forwarded to Chicago, where the market men retail them at 12½ cents each. The skins of our American species are of no value in commerce, their fur being little esteemed and seldom used.

Squirrels probably do not suffer much from the attacks of wild animals. Man is their worst enemy. Wild cats, martens, and some of the larger hawks and snakes sometimes capture the young, and more rarely the old ones. They are occasionally infested by the larvæ of a species of œstrus, which must give them much annoyance. These grubs, or "warbles," are found living in the skin, in abscesses formed by their presence, usually about the shoulders and such other parts as the squirrel cannot reach with his teeth.

Squirrels are readily domesticated, making pleasing and intelligent pets. In confinement, they exhibit their usual activity; and, indeed, if not permitted exercise, they often pine and die. Cages are hence usually provided with revolving wheels, in which the captives soon learn to turn, and from which they derive even more enjoyment than do the spectators by this substitute for their natural exercise.

LARGE-TAILED FOX-SQUIRREL.

[PLATE V.]

Sciurus magnicaudatus, HARLAN.

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tebræ,) 10½ inches; tail to end of longest hair, 14 inches; hind foot, from heel to longest toe, 3 inches; breadth of head between the ears, 1¾ inches; girth behind the shoulders, 7 inches; weight, 2 pounds and 2 ounces; breadth across the tail, with the hairs extendod, 6 inches. The outside of the ear is clothed with long hairs, which extend over three-eighths of an inch beyond the tip. The rudimental thumb of the fore foot is protected by a flat, blunt nail. In this, as in other winter specimens of this species, the coat of fur is remarkably thick and warm.

The general color of the fox-squirrel is mixed, gray and black above, and reddish yellow below; the hairs on the back are bluish-black at the base, broadly ringed with brown, more narrowly with black, then with grayish-white, and slightly tipped with black; a few hairs extend beyond the rest, the extra length of these being entirely black. The hairs on the top of the tail have three black and three light-brown rings, alternately, broadly tipped with reddish-yellow. On the sides and tip of the tail the hairs are, for two-thirds of their length, reddish-yellow, then ringed once more with black, and broadly tipped with darker reddish-yellow; on the under surface of the tail the hairs are entirely of a bright, reddish-yellow. Thus the under side of the tail is of a deep reddish-yellow, surrounded by a distinct subterminal band of black, beyond which it is edged with the color of the centre; the upper surface of the tail is mixed, brown and black, beautifully edged with a terminal band of reddish-yellow. The cheeks, upper lips, the space round the eyes, ears, feet, and entire under parts of the body and legs are of a rich reddish-yellow. The hairs on the belly are ashen for a short distance at the base. The whiskers are entirely black. The toes and soles of the feet are also black; nails black, tipped with white; incisors deep reddish-orange. One remarkable feature in this species is that the bones are tinged with red. Summer specimens are of lighter colors, with the hair much thinner and shorter, and without the thick coat of long hair on the posterior surface of the ear.

With one exception, I have seen no distinct varieties of color in this species. In some specimens, at different seasons, the color of

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under parts of the body perfectly black. It has only been observed in Southern Wisconsin and Northern Illinois.

I have thus minutely described this squirrel, because Audubon and Bachman have, in their "Quadrupeds of North America," made two species of it. It is undoubtedly the S. magnicaudatus, of Harlan, first described by Say, who unfortunately gave it a name already belonging to another squirrel. Under the name of S. sayi, Audubon and Bachman have described a specimen of this species, of unusually bright colors, their highly-colored figure exaggerating the hue of the under parts to a bright orange-red, or ferruginous. This they give as the "Great-tailed Squirrel" of Say, Godman, and Harlan, and as being an abundant species in Illinois. But, among hundreds of specimens, both from Northern and Southern Illinois, as well as from Michigan, Indiana, and Wisconsin, examined in the Chicago markets and elsewhere, I never saw one corresponding fully to the figure and description of S. sayi, given by the authors named above. The figure and description of their S. rubricaudatus were taken from a young specimen of this species in summer pelage of rather light color.

In its home at the west, this large and beautiful species is universally known under the name of the "Fox-squirrel," and, though other American species are also called by this name, it would be useless now to attempt to apply any other. This squirrel has been observed throughout Illinois, in Southern Wisconsin, Eastern Iowa, Southern Michigan, Western Indiana, and, according to Dr. Hoy, throughout the northern part of Missouri, as far south as the Osage river, at least, and in Eastern Kansas. I have also seen it from Western Kentucky, where I am informed it abounds, as well as in Southeastern Missouri, and it will probably be found in other states further to the south and west. Captain Marcy saw a species he supposed to be the S. magnicaudatus, as far south as the Red river of Louisiana. In Northern Michigan, Northern Wisconsin, Northern Iowa, and in Minnesota, I am informed it does not exist, and its northern limit appears to be between the forty-third and forty-fifth parallels of north latitude, though further north it is said to be found in Eastern Michigan. Several specimens of this species have been seen in Ohio, but their appearance is explained [illegible] of that general individuals taken

The fox squirrel loves neither low lands nor deep woods; and, though found living in the heavily timbered districts of Indiana and Illinois, it is less at home in these than in more open ground. It is properly an inhabitant of the timber of the prairie regions, and its favorite habitat is in the "oak openings" of Wisconsin and Michigan, and the groves or edges of the belts of timber that skirt the streams watering the prairies of Illinois. Since these river belts and the prairie groves, or "islands," as the old settlers appropriately termed them, have been protected from the fires that formerly swept them annually, many young trees, especialy pin-oak, (*Quercus palustris,*) in Northern Illinois, have sprung up around them at the edges of the prairie, forming ornamental clumps, that are useful as protection against the sharp prairie winds—the more so, as the pin-oak retains its leaves during winter. These are favorite haunts of the fox-squirrel, and whenever a hollow tree of larger size stands in one of these outlaying groves, it will be the home of a pair. In some localities in Northern Illinois, many young pin-oaks are destroyed by having the bark stripped from the trunks and larger branches, which kills the tops. As neither the porcupine nor any other bark-eating mammal which can climb, is found here, and as this squirrel is known to frequent these young pin-oaks, the guilt has been charged upon him without further evidence than this. It is only within a few years that this extensive destruction of the young oaks has been observed in this vicinity, and it is yearly increasing, while the fox-squirrels are now less numerous than formerly, and food is more abundant, as hogs do not now consume the mast as they did several years ago. Though the tops of hundreds of trees have thus been killed, I have observed none gnawed in neighboring woods where the fox-squirrels are equally numerous.

If this bark-gnawing increases and becomes general in this vicinity, it will be a source of much damage, as the blighted tops of the injured trees would sadly disfigure our beautiful prairie islands

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the raccoons. But any of our farmers, whose corn fields are situated in or adjoining to timber inhabited by it, will find that, while the corn is in the milk, many ears are opened, and, if not eaten, much injured or destroyed, by exposure to the weather. The small-sized marks of the squirrel's cutting teeth in the husks, instead of those made by the raccoon's widely-separated canines, and the fact that the corn is not torn down as it would be by a heavy animal, will sufficiently prove to him that it is not the raccoon, alone, which does the mischief. And, if he will watch carefully some day in his corn field, he will detect more than one red bushy tail, whisked incessantly up and down, as its owner, clinging to a corn-stalk, makes a delicious meal of the milky grains. Not only does he thus eat the corn on the stalk, but he gnaws off whole ears, which are never eaten on the ground, but always carried to the fence, or to a neighboring tree, where, perched upon a flat rail or large limb, he discusses them at his leisure. Sitting upon his hind-feet, he tears off the husk and pulls out the kernels with his teeth, and, if the corn is in the milk, all the soft part is eaten, but, when ripened, he often lays down the ear, and, holding the kernels in his paws, only gnaws out the germ. Along fences or under trees, situated in or near corn-fields thus attacked by squirrels, husks, cobs and partly-eaten ears of corn may frequently be found. Sometimes, when squirrels are molested, they do not stay near the field to eat the corn, but carry the ears off to some distance in the woods. I am informed that when the crop of mast is scanty, large corn-fields have been destroyed in parts of Illinois and Indiana by this and one or the other of the two species next to be described; while fields in these localities are more or less injured every year, especially if bordered by timber or with a few old trees standing in them, in which the squirrels can take refuge, as they venture with less fear into these fields than into those at a distance from their congenial refuge. I have observed, however, that the fox-squirrel will leave the immediate vicinity of trees more readily than the other species. Like other squirrels, it will run along a fence to a much greater distance from

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In the woods the food of the fox-squirrel consists almost entirely of the nuts and seeds of trees, with the buds of some species, including bass-wood, elm and maple. In autumn it eats the fruit of various thorns, (cratægus;) various berries are also eaten by it, and it is said to be particularly fond of strawberries. In common with other squirrels it sometimes eats insects; and it has occasionally been observed to gnaw the bark from dead trees to procure beetles and their larvæ. Like other squirrels, too, it has been seen to gnaw through the bark of trees girdled in spring, to taste the decomposing sap. So fond of this are they, that fifteen or twenty grey-squirrels have been seen thus engaged upon a single oak, thus girdled.

It is a common opinion that this and other squirrels carry large hoards of nuts to hollow trees for consumption in winter. So far as our three species, common in Illinois, are concerned, this is entirely erroneous. With the exception of the little "Chickaree," no true squirrel that I have observed ever collects food for winter in hollow trees. A few nut-shells are sometimes found in a squirrel's hole, but these are only such as he has taken there to be eaten at the time. The fox-squirrel, with the migratory and Carolina squirrels, also, as well as others, probably, buries large quantities of nuts and acorns under the leaves in autumn, for use in winter. These, however, are not collected together, but concealed one in a place. In winter the squirrels dig them up; and, when the ground is covered with snow, numerous holes will be seen where they have dug down to get them. It is interesting to notice that they seldom dig through the snow and leaves in this way without coming directly upon the buried nut or acorn, and a common idea is that the animal "remembers" the spot. This is highly improbable. It is more reasonable to suppose that the animal is guided by the sense of smell. Dr. Hoy tells me that he has seen squirrels run about with the nose close to the snow or leaves, and finally dig directly upon a buried nut without hesitation. He gives it as his opinion that they can always smell the food, unless it is buried under very deep snow. I am not aware that corn is thus stored for winter use. Though many nuts and acorns are buried in this way, the fox-squirrel, as observed in

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Mr. Smiley Shepherd, of Hennepin, Illinois, in a letter containing a reliable account of the mammals of his region, informs me that he has repeatedly observed where the fox-squirrels have carried large numbers of nuts and deposited them securely in the forks of small trees, their tracks being readily traced in the snow to where nuts had been recently dug out. This was observed in cold weather, when the snow was deep. Unless Mr. Shepherd mistook the work of wood-peckers and nut-hatches for that of squirrels—which is hardly probable—this is an interesting fact with regard to the habits of this squirrel.

I have observed that, in digging nuts from under the leaves, in winter, the fox-squirrel never remains upon the ground to eat them, but carries them to a neighboring stump or log, or, more frequently, to the low branches of some small tree, under which the shells are found cut and broken into a number of pieces, instead of having small linear openings cut through the thinnest part of the shell.

The fox-squirrel is more solitary in its habits than the migratory squirrel. More than two old ones are rarely, if ever, found living together. In the summer and fall, the old males lead a solitary life, as they sometimes do in winter. As soon as the young are able to take care of themselves, the female usually drives them off, when the old male, which has retired to a summer residence to escape the discomfort attendant upon the rearing of a family, returns to the winter-quarters and society of his chosen mate; for, usually, this species is not polygamous. This squirrel often, if not generally, builds several nests, each of which is sometimes a simple pile of twigs and leaves placed in the forks of a tree, but at other times is carefully and ingeniously constructed, being round, with the central cavity quite roofed over, and a small entrance on one side. The more carefully-formed nests are usually on tall trees; but temporary habitations are frequently built on small trees, and within twenty feet of the ground. After being driven off by the mother, the young usually separate and lead a wandering life—for a time, at least. They build nests wherever they stop, even for a day or two; and I have several times ob- [illegible] build a

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him. When he once becomes domiciled in a tree, he does not leave it, unless disturbed—pairs being observed to inhabit the same tree for five or six successive years. It is less prolific than either the migratory or Carolina squirrel. From two to four young are usually brought forth at a birth, the most common number being three; but in one instance I have seen five. Two litters are probably produced each season. So far as has been observed, they are always brought forth in the hole, the nests of of leaves being only used as summer houses. Like the young of most rodents, they are ugly, unsymmetrical little beings, at first, with monstrous heads and closed eyes; and it is some time before they acquire the elegant proportions and agile movements of their parents.

These squirrels sometimes leave their holes for food, and even for amusement, in very cold and rainy weather, when they are found moving about much more than the migratory species. But, though active at this time, and apparently engaged in play, they do not now "bark," as on warm and pleasant days. Like other squirrels, they dislike to move about in windy weather, when the waving branches make their highways among the tree-tops insecure.

The old comparison, "as lively as a squirrel," is not inapt, and the fox-squirrel, like the other, exhibits remarkably active habits. While the females and young are together, in early autumn, it is amusing to watch the movements of a party on any pleasant day, when their enjoyment of the abundant food and things in general is testified by a degree of sprightliness and agility quite astonishing. One afternoon, in September, by concealing myself near a large hickory, on which four or five were engaged in eating unripe nuts, I had an opportunity of witnessing their movements without alarming them. With surprising ease one would run out upon a limb so slender that it would bend beneath his weight, and, seizing a nut in his teeth, he would pull it off and carry it back to a more secure seat on a large branch, always returning to the same spot. Here, standing upon his hind feet, in a posture

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from limb to limb, with no other apparent object than fun. Their long bushy tails were never kept still, but continually jerked up and down. Occasionally one would stop for an instant, and utter a short bark, or chatter. One kept aloof from the rest, and, when approached by any of them, in their play, chased them off with an angry, guttural snarl. A movement at length discovering me to them, some scampered further up the tree, while one, after watching my partly concealed form a moment, ran down the trunk to within twenty feet of the ground, and, spreading himself out flat against the tree, with his head down and tail extended straight behind him, barked at me with energy. He first uttered several abrupt notes, *quak*, *quak*, and then a long shrill *qua'a-a-a*, the number of the short sounds varying, but always followed by the long sharp *qua'a-a-a*. At the repetition of each short note he jerked his body violently, and whisked his tail slightly, giving it a gracefully undulating motion. He continued to bark thus incessantly for several minutes, until, at length, I exposed myself fully to view, when he hastened to the opposite side of the tree, and ran to the top, uttering a low chatter of affright.

This species is usually more silent than the migratory squirrel, and if one of them hears any loud noise in the woods, it hides or runs to its hole instead of chattering at it, as the other often will; though, while at work in a field near the summer home of an old male, I have many a day been cheered by his merry *quak-quak-qua'a-a-a*, uttered for an hour at a time.

To use the words of the hunters, fox-squirrels "hole" more than the migratory squirrels; that is, they keep more in holes, spending less time in their nests of leaves, to which, however, they are fond of retiring on sunny days, late in autumn. At this time I have seen lazy hunters go about firing into the nests with shot guns, calculating that the proportion containing squirrels would compensate for the waste of ammunition fired at empty nests.

I am not aware that this species has ever been known to mi-

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tance from their home, but when chased they will even, if hard pressed, run a long way upon the ground in the endeavor to reach their hole, rather than take to the first tree, like other squirrels. The tree attained, they never stop upon its branches, but run directly into the hole. In the woods this squirrel is usually more shy than any others that I have observed; at least, it will not expose itself so boldly to any one seen by it. Yet it takes up its abode near dwellings much oftener than the others; indeed, I know of no squirrel, excepting, perhaps, the chickaree, that will live as near the habitations of man as this. I have observed several instances in which pairs of fox-squirrels have lived and reared their young, for a number of years, in trees situated within a few rods of dwelling houses; and in winter I have seen these, as well as others, from the woods, come boldly about the farm-yard or corn-crib, in search of food.

For a figure of the fox-squirrel, (*S. cinereus*,) of Pennsylvania, see plate V.

MIGRATORY, OR COMMON GRAY AND BLACK-SQUIRREL.

[PLATE VI.]

Sciurus migratorius, Audubon and Bachman.

Description.—The adult male measures about twelve inches from the nose to the root of the tail; vertebræ of the tail, 10½ inches. In color, there are two very different varieties of this species commonly met with. One is of a blackish-brown on the upper parts, lighter beneath, and with some rusty markings on the feet and face. The other is of a gray color, with reddish-yellow markings about the head, belly, sides and feet. These two varieties are commonly considered, among our farmers, as distinct species, and are respectively called the "gray" and "black" squirrel; but any one living in the woods may, by a little observation, satisfy himself of their identity as one species, and the females will be found to bring forth specimens of both varieties at one birth, and the two live and breed together without regard to color. They are now known under the two very different names of the "black" and "gray" squirrel; but while there are other black and gray-squirrels, would it not be better for our farmers to adopt the highly appropriate name of the "migratory squirrel" for this species—the more so as Audubon and Bachman have, with good taste, given this as its specific name?

The gray variety is the most abundant, and, it is said, some-

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In the northern states the migratory squirrel replaces the Sciurus Carolinensis of the south. It exists throughout the eastern, middle and in some of the western states, and is said, by Audubon and Bachman, to be found as far north as Hudson's Bay. In Illinois it exists in only the northern part of the state, being replaced by the Carolina gray-squirrel in the south. It exists abundantly in Northern Illinois, Southern Wisconsin and Central Iowa, but to the northward, I am informed by Dr. Spier B. Davis, of Shakapee, Scott county, Minnesota, that it is not observed in the southeastern portion of that territory. I learn, from Dr. Hoy, that it does not exist in Northern Wisconsin. Audubon and Bachman, however, mention its being found on the Upper Missouri.

This is the most abundant of our American squirrels. It has a wide geographical range, and is prolific, and in many localities exists in almost incredible abundance. The immense numbers, heretofore mentioned as killed in one year for the bounty offered by Pennsylvania, was chiefly of this species. In Northern Ohio, I have seen them in such numbers as to be truly astonishing. Dr. Hoy relates that he knew a hunter in that state to kill one hundred and sixty in a day, and that, too, when they were not unusually abundant in the locality. In parts of Michigan, Illinois, Southern Wisconsin and Indiana they are no less numerous. Existing in such myriads, their depredations, of course, become, at times, a source of serious damage to the farmer. Fields of corn, and, occasionally, wheat, are much injured or entirely destroyed by them. I am informed that persons have sometimes kept watch in their fields to drive them off, and thus prevent the destruction of their whole crop. This species appears to increase in numbers, in certain districts, for a time after their settlement.

The migratory squirrel is at home both in low, heavy timber, and higher and somewhat more open woods, though it loves the heavily timbered, elevated ground best. It never frequents the outskirts of the woods, of which the fox-squirrel is so fond, and does not affect oak openings, nor the prairie groves, unless well timbered. This is one of the most active of our squirrels, and,

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The most interesting feature in the habits of this animal is the remarkable migration performed at times by large bodies of them. I am not aware that any of these extensive migrations have been observed in Northern Illinois, but in the neighboring states of Wisconsin and Michigan, and in other localities where the species abounds, they not uncommonly occur. Immense numbers congregate in autumn, and move off together, continuing their progress in the same general direction, whatever it may be, not even turning aside for large streams. Ordinarily averse to entering the water, they now take to it boldly, and, though swimming with difficulty, manage to cross broad rivers, like the Niagara and the Ohio, though many are drowned in the attempt. The vulgar notion that squirrels, in crossing water, "are ferried over on bits of wood and bark, using their tails for sails," is, it is, perhaps, needless to say, entirely fabulous. Sometimes, when on these migrations, especially after crossing rivers, the squirrels become so fatigued as to be easily captured, and thousands are then killed by boys, armed merely with sticks and stones. I learn from Dr. John A. Kennicott that, during one of these migrations, innumerable squirrels swam across the river Niagara, and landed near Buffalo, New York, in such a state of exhaustion that the boys caught them in their hands, or knocked them from the fences and bushes with poles. It must not be supposed, however, that the squirrels, in these migrations, rush ahead without stopping, or turning to the right or left for food. Better would it be for some unhappy farmers if such were the case, for ill fare the corn fields which they visit. Generally, they are observed to make their appearance in unusual abundance, running along the fences and up every tree; and, though they may often go out of their way to follow a fence, or to enter the woods, in preference to crossing open ground, or even to stay some time in one locality, they are always tending forward, more or less rapidly, in one direction.

The reason for these migrations is not satisfactorily explained. That they are caused by want of food is hardly probable, as the squirrels are found to be fat at the time, and as often leave localities abounding with food as otherwise. After one of these grand

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sudden increase in their numbers was heard of in North Illinois after the several migrations from Southern Wisconsin. Many are drowned in attempting to cross streams, as has been stated; not a few are destroyed by man; some die from utter exhaustion; and, when thus forced to travel, in an unnatural manner, upon the ground, they fall an easy prey to rapacious birds and mammals, all of which feast when the squirrels migrate. I learn from Dr. Hoy, that one of these migrations is said to have taken place in Southern Wisconsin in 1842; he witnessed another in 1847, and a third in 1852. From these facts, and from observations made in Ohio and elsewhere, he is of the opinion that the migrations, in most cases, at least, occur at intervals of five years; and, if he be right, the squirrels, which are now exceedingly abundant again in Southern Wisconsin, may be expected to migrate in the autumn of 1857. He further says, that the migrations observed by him, in Southern Wisconsin, occurred when the mast was exceedingly abundant and the squirrels in excellent condition. Near Racine, they were observed passing southward in very large numbers for about two weeks, at the end of September and the beginning of October; and it was a month before all had passed. They moved along rather leisurely, stopping to feed in the fields, and upon the abundant nuts and acorns of the forests. So far had they departed from their accustomed habits that they were seen on the prairie, four or five miles from any timber; but even there, as usual, they disliked to travel on the ground, and ran along the fences wherever it was possible.

The food of these squirrels is similar to that of the fox-squirrel. They are also very fond of the berries of the black-haw, (*Viburnum lentago.*) They are more prolific than the other species, from four to six young being produced at a birth; two and perhaps three litters are brought forth each year, the first quite early, generally in March. The gravid female is very shy and silent, keeping close in the hole, and venturing out for food with caution.

The migratory squirrel is somewhat social; several will feed together, and five or six occasionally inhabit one hole in winter. Where not much hunted, it is noisy and bold. Frequently, when a dog barks or a gun is discharged in the woods where they

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BLACK-SQUIRREL.

[PLATE VI.]

Sciurus nigre, LINNÆUS.

DESCRIPTION.—This is a little larger than the migratory squirrel. It is all over jet-black, with the exception of a few whitish hairs on the under surface. The fur is very soft and glossy; the hairs on the back are not annulated, as in Sciurus migratorius. There are no varieties in color.

This species is considered by some naturalists to be a variety of the migratory squirrel; and it possibly may be so. It has not been seen to breed with this squirrel, however; and, if only a variety in color, it is a remarkably permanent one in a species so variable. Some of its habits seem to differ from those of the other, though they are mostly the same.

The black-squirrel has been observed through the Middle States, in Michigan and Wisconsin; and Audubon and Bachman speak of specimens received from Lake Superior. I have seen them from Indiana in the Chicago market, and have shot some in Northern Illinois. It appears to be nowhere a common species; and all hunters agree that it disappears before the migratory squirrel, which is said to drive it off.

In Northern Illinois, I have always observed this squirrel in swamps or low river "bottoms," and never in the high prairie groves, where the migratory squirrel is sometimes abundant. It is worthy of remark that it sometimes appears to love the vicinity of rivers or ponds of water.

SOUTHERN GRAY OR CAROLINA SQUIRREL.

Sciurus Carolinensis, GMELIN.

DESCRIPTION.—Size somewhat smaller than the migratory or northern gray and black-squirrels It is of a rusty-gray color above; on the belly, it is pure white; the

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sissippi, who informs me that it is common in the woods along Pearl river. It is found in Virginia and Southern Ohio. In Southern Illinois and Indiana, it is exceedingly abundant. At Cairo, in this state, I saw specimens which had been shot in Kentucky, and I was told that it was abundant in the western part of that state as well as in Southeastern Missouri. It doubtless exists throughout Kentucky and Tennessee. Dr. Hoy informs me that he saw it, in considerable numbers, through Central Missouri, along the Missouri and Osage rivers. In the more heavily timbered districts, along the Mississippi and Illinois rivers, this squirrel abounds, even in Northern Illinois. I believe it is never found in the prairie groves nor oak openings; but in the prairie regions in the northern counties of this state, it is occasionally met with in heavy timber on the low river-bottoms, or in those skirting Lake Michigan. In this locality it is known among hunters as the "Silver-gray Squirrel."

The Carolina squirrel delights in the heavy timber on low bottom lands. It even finds a favorite home in the deep shade of cypress swamps, where the sombre drapery, formed by the hanging tillandsia, gives them a dark and sad appearance, which is wonderfully enlivened by the numbers of squirrels that run about the trees, and leap from limb to limb, or sit perched upon the branches, saucily eyeing the traveler, who, delighted by their merry activity in this gloomy place, pauses to observe them. In Southern Illinois, where this and the fox-squirrel are the only species found, it is much more numerous in the swamps and river bottoms than on the high ridges.

This squirrel is very generally confounded with the Sciurus migratorius of the north, and naturalists have made much confusion by falling into this error. DeKay, in the "Natural History of New York," calls the migratory squirrel Sciurus Carolinensis; and some other naturalists still persist in considering the two identical. A little attention to the habits of each would convince any one of the propriety of considering them as distinct.

The food of the Carolina squirrel is much the same as that of the two species already described. They bury nuts and acorns in the leaves, and late in the winter feed largely upon buds, being

stalk and carry off whole ears to the woods, sometimes, also, digging up the newly planted grain.

From three to six young are produced at a birth by this species. Two, and possibly sometimes three litters, are brought forth in a year. They are rarely produced in the nests of leaves.

LITTLE RED-SQUIRREL.

[PLATE VII.]

Sciurus hudsonius, PENNANT.

DESCRIPTION.—Length of adult male in winter, from nose to root of tail, 8¾ inches; tail, (vertebræ,) 5½ inches; tail to end of hair, 6¾ inches; hind foot, 1⅞ inches; breadth of tail with the hair in natural position, 1½ inches; back, light grayish-brown, with a dorsal stripe of bright reddish-brown; tail, bright reddish-brown above, dingy-brown below, with a subterminal border of black; under parts of head and body, pure white. This is full a third smaller than the migratory squirrel; the hairs clothing the body are much shorter, and the tail less bushy. There are no distinct varieties, though the colors of the upper parts are sometimes—if not generally, at the East—much redder than in the specimen from Ohio here described, being without the dorsal stripe of a color so different from that of the rest of the back. Other specimens from Ohio are colored like that described.

This pretty and active little animal is well known through the northern states, under the names of "Red-Squirrel," "Chickaree," "Pine Squirrel," and, sometimes, "Mountain Squirrel." It is a northern species, but has a wide geographical range. It is found abundantly throughout the Eastern and Middle States, and probably exists as far to the northward as the pine and spruce occur. Southward, in the Atlantic States, it is found in the mountains of Virginia, and, according to Audubon and Bachman, it has even been seen within North Carolina. In the interior it abounds in Ohio and Indiana, and is found sparingly in heavy timber in Illinois; but it is not common, if it occurs at all, in the southern parts of these states. West of the Mississippi it has rarely been seen in Northern Missouri. It is found in Central Iowa, and is abundant in parts of Southeastern Minnesota, where, in fact, it is the only species. About Lake Superior, in Northern Minnesota and Wisconsin, where no other squirrel [illegible]

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groves, nor in the oak openings. It loves to take up its residence among evergreens, the seeds of which form its favorite food, those of the black-spruce particularly. In cultivated districts, it sometimes departs from its natural habits. It becomes accustomed to man's presence, living sometimes in trees quite near dwellings, and frequently in out-houses, in winter, when it comes fearlessly about the house and corn-crib. It is attached to its home, and will not leave its favorite tree unless much molested.

Unlike any other of the true squirrels found here, this species sometimes, but not generally, lives in holes in the ground. Unlike the others, too, it collects into its hole in autumn an ample provision of the good things of squirrel life, wherewith to console and sustain itself in the uncomfortable season of frost and snow. It is well known that the chickaree makes large hoards of acorns, nuts and seeds. These are deposited in hollow trees, and sometimes under fallen logs, and even occasionally in holes in the ground. In consequence of his good cheer, this squirrel is seen actively scampering about in cold weather, when his hungry cousins cannot pluck up courage to leave their warm abodes, even in search of food. In the corn field, his depredations are at times the source of much annoyance to the farmer. Besides eating at the time with others, this provident species is said to carry off corn to its hole for winter use.

The red-squirrel runs with great swiftness; and though it cannot leap as far as the migratory species, it darts along the trunk of a tree much more rapidly. Its note is a merry, shrill *chir-r-r-r-r*, very unlike the "bark" of the migratory and fox-squirrels.

Like the red-fox and some other animals, this squirrel appears in some instances to follow the settlements of the white man. In parts of Northern Illinois, where it was not seen formerly, it is now occasionally found, and is increasing in numbers. Dr. Kirtland speaks of it as having scarcely made its appearance, about the beginning of the present century, on the Western Reserve, in Ohio, where it is now exceedingly abundant. It may be, however, that this appearance of the red-squirrels in these localities

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COMMON FLYING-SQUIRREL.

[PLATE VII.]

Pteromys volucella, GMELIN.

DESCRIPTION.—Length of old male, in March, from nose to root of tail, 4½ inches; vertebræ of tail, 3 inches; tail to end of hair, 3¾ inches; hind foot 1¼ inches; breadth of tail, hairs in natural position, 1½ inches; width across the back from side to side, including fur, with the flying membrane extended, 4 inches; length of supplemental bone supporting the flying membrane, ¾ inch. This is certainly the most beautiful of our rodents. In the specimen before me, the long and exquisitely soft fur is slate colored, tipped with creamy-yellowish drab on the back, the top of the tail brownish-drab; on the under surface, milk-white, tipped with cream color at the outer edges of the flying membrane and toward the tail, the under surface of which is very light brownish-yellow, tinged with cream. The large prominent eyes are black and lustrous; the whiskers long, and the nearly naked ears rather large. The tail is densely clothed with soft hairs, and smoothly flattened; the feet are slender, with small arched nails The skin on the side is extended outward, to form a membrane which is attached to the legs, and to a supplemental slender curved bone, articulating with the joint of the fore foot. When this membrane is stretched, the animal is enabled to sail through the air to some distance, by the force gained in descending from any elevated position, being aided in this by the flattened tail, which also serves as a rudder. It is not to be supposed, however, that the flying squirrel can propel itself through the air, like a bird or bat. The tail and membranes only form a sort of parachute, to buoy it up while the force gained by the descent, and by the spring made, carry it forward. When it is about to alight, it sails upward, by using the tail and hinder parts as a rudder, the momentum acquired being sufficient to raise it for some height at a considerable curve.

This, and several other American flying squirrels, and more from the Old World, form an exceedingly interesting group in the family Sciuridæ, from the other members of which they differ materially in some of their habits. It probably exists throughout the whole eastern part of the Union. Its habitat being strictly among the trees, it cannot of course abide on the prairies, nor is it found generally in our smaller prairie groves; though it is as abundant in the large woods of Northern Illinois as elsewhere.

The flying squirrel is as active as the true species, but, unlike the rest of the family, it is nocturnal, and does not move about

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hollow trees, he will frequently see a number of these singular and beautiful little animals rush out of a hole, and sail off to the neighboring trees. It does not build nests of leaves among the branches like the true squirrels. I am informed by Mr. Brendel, of Peoria, however, that a female was observed by him to bring forth in a deserted bird's nest. From three to six young are produced at a birth. Its food appears to be similar to that of the true squirrels. It eats corn and other grain, though, as it does not willingly leave the trees, the amount is probably inconsiderable, compared with that taken by the true species.

Flying squirrels appear, sometimes, at least, to lay up stores of food for winter, at which time they are active. I am informed of a number of instances in which they have entered the garrets of cabins, in the woods, to feed upon the corn deposited there.

A specimen, kept in a cage, became quite tame in a few days. Unless disturbed, it remained quiet during the day, curled up in its nest, with the head drawn down to the abdomen, and the flat tail laid over its head and upon the back. It would take food offered it during the day, but the light seemed to be painful to its eyes. In the evening it began to spring and climb about the cage, and was active all night. This species has frequently been known to take up its residence, voluntarily, in or about human dwellings. It is quite easily domesticated, and, being gentle, and very beautiful, makes a pleasant and interesting pet.

STRIPED GROUND SQUIRREL, OR CHIPMUCK.

[PLATE VIII.]

Tamias striatus, LINNÆUS.

DESCRIPTION.—Length of head and body of the adult male, in summer, 6⅝ inches; vertebræ of tail, 4⅞ inches; tail, to tip of longest hair, 5⅝ inches; breadth of tail, hairs in natural position, ⅝ inch. Upper parts brownish-gray, yellowish on the sides; two light yellow and four black lines on the back; the rump bright brown; belly white; tail not bushy nor flat, as in the true squirrels.

This beautiful and familiar little animal, with several other spe-

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in which they carry large quantities of food to store up for winter provisions.

The chipmuck exists throughout the eastern and middle, as well as in some of the western states, and as far north as latitude fifty degrees, in the British Possessions. It is found in Minnesota, Iowa, and, rarely, in Northern Missouri. I seldom observed this species in the heavily timbered districts of Southern Illinois, and then only near clearings; and Colonel Ashley, of Jonesboro, informs me it is rare throughout the southern part of this state. Though abundant in the prairie regions of Illinois, this species never leaves the woods. It is well known to every farmer living within its habitat under the name of "Striped Ground Squirrel," "Chipping Squirrel," or "Chipmuck." Audubon and Bachman say it is called "Hackee" at the east; but I have never heard that name applied to it here.

Wherever it abounds, the chipmuck attracts attention by its beauty, industrious habits and cheerful activity. Not being a tree climber—and, in fact, preferring somewhat open ground to deep woods—nor fearing the neighborhood of man, it is found most abundantly burrowing under stumps, logs or fences about cultivated land, and seems rather to increase than diminish in numbers as the forests it inhabits are cleared for cultivation.

In spring and summer, chipmucks make love, rear their young, chase each other over the stumps and logs, in play, and enjoy themselves in various other ways; and with autumn and its harvest time comes their season of hard work. We are not to suppose, however, that this work is at all disagreeable to them, as man's duties are to him, when he will not cheerfully obey the laws of creation. They may now be seen hastening to and from their holes, their cheek-pouches distended with nuts, acorns and seeds, or with grain stolen from the neighboring fields. Thus they continue to collect food until cold weather has set in, when they retire to their burrows, where, with well filled larders, they pass the winter comfortably, regardless of the cold winds which rage above them. This species closes the entrance to its burrow late in autumn, and appears to pass the winter in a state of semi-hibernation; for, though taking nourishment and not turned it

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trees. Dr. Hoy informs me that he once observed a number of chipmucks climbing the bushes of the prickly ash, (*Xanthoxylum Americanum*,) to obtain the berries, which they were carrying to their burrows in considerable quantities. At another time he saw one repeatedly climb a hickory and cut off the unripe nuts, which were brought to the ground, and, while yet covered with the green pericarp, placed in a hole at the root of the tree, which, however, was not its burrow; and he was told that the same individual was noticed to carry away nuts in this manner for some days. Though this species does not generally climb trees, except when pursued, I am inclined to think it does so voluntarily more frequently than is supposed.

The quantity of nuts, acorns and seeds sometimes collected by these industrious little fellows is astonishing. They are frequently stored, temporarily, under logs, and in shallow holes under roots of trees, and afterwards removed to the burrow, at a more leisure season. I have known lazy people to watch the chipmucks in nutting time, and, finding where they carried their stores, dig them out, saying they could thus get nuts faster than by picking them up themselves. In a burrow dug open in November, I found over half a bushel of hickory nuts and acorns. These were not all in one place, but in four or five enlarged chambers, in different parts of the burrow, which was complicated, and consisted of several winding and intersecting passages, situated not over a foot below the surface. The entrance to the burrow was under a log, and the passages extended several feet on every side. A large nest of leaves and grass was placed above the surface, under the rotten log. Only one of the inhabitants was found, but he was quite active.

This ground squirrel is sociable, and sometimes, though not always, several pairs occupy the same burrow in winter, the store of food being common property. These, like the true squirrels, stand erect on their hind feet, when eating, using the fore paws as hands. The power of their incisors is wonderful; they cut, with apparent ease, through the shells of the seeds of wild plums, which would resist the point of tempered steel.

At times, the note of the chipmuck is a short, deep *cluck*, repeatedly pronounced, without variation; and on a sunny day he

The amount of grain stolen by chipmucks is seldom of much value, though, where they are so abundant as to attack a field by hundreds, the result of their depredations may become quite an item of loss. The most serious cause of complaint against them is the injury done by digging up corn, when first planted. They go along the rows, like the black-birds or spermophiles, and guided by the sprouting blades, dig out the grains, or even take them before they sprout, and in this way frequently cause considerable damage. Chipmucks, generally, however, cannot be considered as great enemies to the farmer. They are oftener destroyed by rapacious birds and mammals than the true squirrels, though, being considered of no value as food, they are not so frequently killed by man. Our small weasels are known to kill many; the mink often makes a meal of them; and even the foxes and wildcats do not disdain to devour every unlucky individual they can catch, while many are eaten by birds of prey; so that it is no matter of surprise that they should increase in cultivated districts, where they are, in a measure, protected from their natural enemies. When they become so numerous and destructive as to render it necessary to kill them off, they may be easily shot, or caught in any kind of a trap, as they are not at all suspicious; and they could probably be poisoned with arsenic, mixed with meal, and placed near their burrows. Several ferrets and terrier dogs would quickly clear a farm of them.

Other ground squirrels, closely resembling this in appearance and habits, exist in the western parts of the Union. I learn from Dr. Hoy, that the four-lined ground squirrel (*Tamias quadrivittatus*, of Say,) is found in Northern Wisconsin. This species, as observed by him in the Lake Superior region, appeared to have habits similar to those of Tamias striatus, though its voice differs so much as to be readily distinguishable from that of the latter, the note being longer, and on a higher key.

PRAIRIE SQUIRRELS, OR SPERMOPHILES.

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plants, with their roots and seeds. The form of these squirrels is adapted only to locomotion on the ground. The body is thick and heavy, with short legs, and, in place of the long toes and sharp, hooked nails, by which the arboreal squirrels cling to the trees so readily, they have shorter toes, with longer and straighter nails, for digging burrows in the earth. The long, flexible and bushy tails, which aid the squirrels in their bold leaps, and keep them warm in their holes in winter, would here be useless, and soon worn ragged by dragging through their burrows. The spermophiles, therefore, have smaller tails, that are carried straight behind them. They have cheek-pouches, in which to carry food, and two species, at least, convey roots, seeds, &c., to their burrows, to be eaten.

In winter, there would be little food or shelter for them on the frozen and snow-covered prairies; and so the spermophiles make one long night of it, and sleep away the season of frost. The peculiar state of torpor in which these and some other rodents, as well as a few carniverous mammals, pass the winter, is an admirable provision in the economy of nature. At the approach of severe cold, in autumn, the prairie squirrel retires to its burrow, the entrances to which are tightly closed with earth, to exclude the frost. In the large nest of grass he curls himself up, with his head against the abdomen, and falls into a state of torpor, out of which he does not awaken until the return of warm weather, in spring. In this state he takes no nourishment whatever, nor does he move.

If cut or bruised, he exhibits no signs of feeling, and, to all external appearances, seems dead. Respiration and the circulation of the blood are carried on very imperfectly; but slight oxygenation of the blood takes place, and little heat is generated—the body being cold. There is no secretion nor excretion, and very little waste of tissues occurs; and thus the necessity for food is obviated. From this state he is at once revived to activity by the simple application of heat. Placed in the cold, he again becomes torpid. It is to be observed that the species which passes the winter thus in a profound torpor, if removed to a warmer climate, or if kept in a warm room, will remain active during winter. Thus we see how, in the perfect laws of nature, it is ordered that the hibernating animals shall fall into this state of torpor only

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large companies. The flesh of several is said to be palatable, though I am not aware that either of our two prairie squirrels is eaten in this vicinity. Two species have rendered themselves obnoxious to our prairie farmers.

STRIPED AND SPOTTED PRAIRIE-SQUIRREL.

[PLATE VIII.]

Spermophilus tridecimlineatus, MITCHELL.

DESCRIPTION.—Length of adult male, in September, from nose to root of tail, 7 inches; tail, (vertebræ,) 3⅝ inches; tail, to tip of longest hair, 4¼ inches; hind foot, 1⅛ inches. On the back and sides there are nine stripe, of a dark-brown color, with a row of yellowish dots along each of the five central stripes, which are the broadest and most distinct. Alternating with these brown stripes are eight narrow lines of yellowish gray; thus making seventeen in all, which shows Mitchell's name to be not very characteristic. The lower lines are indistinct, and, in some specimens, cannot be traced. The under parts of the body are yellowish-brown.

This little animal, so well known on our prairies, resembles the common chipmuck, (*Tamias striatus*,) and is of about the same size, or a little longer. It abounds in the prairies of Michigan, Wisconsin, Minnesota, Iowa, Northern Missouri, Middle and Northern Illinois and Northern Indiana. It is only found in the northern edge of Missouri. In Illinois, it is most abundant in the northern part of the state; and it does not exist at all below latitude thirty-nine degrees, if it does as far south as that. It is not found east of the prairie regions, or oak openings of Indiana and Michigan, except, rarely, in the northeastern corner of Ohio. At the north, Richardson found it towards latitude fifty-five degrees, in the British Possessions; it has been seen as far west as Fort Laramie, on Platte river. Audubon and Bachman state that it is found abundantly on the Upper Missouri, and that it is said to extend along the prairies east of the Rocky Mountains, into Mexico.

In Iowa, Wisconsin and Northern Illinois, where this animal is abundant, and much complained of by farmers, it is universally called "gopher." The true gopher (*Pseudostoma bursarius*) being also found in Iowa and Illinois, the two animals are frequently

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writing about. One, who knows only the true gopher, the burrows of which are miles in length, very naturally laughs at another for saying he drowns out hundreds of gophers, (meaning prairie-squirrels,) by pouring a pailful or two of water into a burrow; while the latter thinks the other must be very careless to state that gophers cut the roots of trees, gnaw vegetables and injure fields by throwing up hills. The pseudostoma, undoubtedly, has the best right to the name of "gopher," and should retain it. Our farmers would obviate needless and frequent confusion if they would not apply the same name to the present species, for which the designation "Striped Prairie Squirrel" would be far more appropriate; and which, in fact, is highly characteristic, being, in itself, a description of the animal. To call it "Ground Squirrel," as is sometimes done, is bad, because the Tamias striatus is well known as the "Striped Ground Squirrel." In Northern Illinois, I have heard the German farmers very generally call it "Fence Mouse," which name they also apply to the Tamias striatus.

This species is, emphatically, a prairie animal. It never inhabits timber lands when there is prairie in the vicinity. Though it may be found in oak openings, it is never in heavy timber; and, when living in these openings, it is always most abundant on the edges of open ground, or where the trees are most scattering.

I am not aware that this prairie-squirrel ever inhabits ravines,* in preference to level ground, though Spermophilus franklinii sometimes appears fond of burrowing in banks. The favorite habitation of this species is on dry prairie knolls. It is naturally gregarious, and though never observed living in such great companies as the prairie-dog, twenty, or sometimes even fifty or a hundred may be found within the area of an acre, two burrows being frequently within a few feet of each other, though one is never inhabited by more than a pair. In passing near a knoll inhabited by them, numbers may be seen standing upright at the entrance of their burrows, so straight and motionless as to be easily mistaken for as many sticks. But, as you approach one, he will disappear, by a movement so rapid that he can scarcely be followed by the eye; and, if it were not for the whistling chatter accompanying his disappearance, you might think your vision

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had deceived you, and that nothing had been there. But, upon stepping back several rods, it is more than likely that he will have resumed his position before you are aware of it. If you remain close to his hole, he will only thrust out his head and eye you suspiciously.

The striped spermophile leaves its burrow with great caution, and only for a short distance. At the slightest alarm it silently glides back through the grass, yet with great rapidity, keeping close to the ground, and never leaping. Its burrow reached, unless closely pursued, it stops for a moment at the entrance, sitting upright on the tarsi, and then suddenly pops into the hole, uttering several quick, clear, whistling notes. Unless it has been very much alarmed, it will always thrust out its head again to reconnoitre; and boys, taking advantage of this practice, often catch these animals by slipping a noose arranged over the hole the moment one has entered. When one is shot near its burrow, the body can seldom be secured, for, like the prairie-dog, unless cut to pieces by the shot, he will manage to tumble into his hole.

Before the production of the young, in May or June, the old male leaves the female, and appears to lead a solitary and more or less wandering life, digging a temporary burrow, or occupying a deserted one for a few days, wherever he may take up his abode. These summer burrows may often be found, and sometimes are of considerable extent; several of those which were examined were more than twenty feet in length, being simple galleries, from six inches to a foot below the surface—deeper in sandy soil—opening at both ends, with the nest placed in a small side-chamber; others were of much less extent, sometimes with but one entrance, and sometimes without nests. The winter burrow, in which the pair hibernate, and the female brings forth her young, is deeper and more complicated, having always two entrances, or more. In this, in a side-chamber of suitable size, excavated above the level of the rest of the burrow, is a large spherical nest of soft grass, entered by an opening on one side. This nest is sometimes of

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they are twenty days old, and that the eyes do not open till the thirtieth day. They continue to require the nourishment and care of the mother for a much longer period than most rodents. During summer, they begin to dig shallow burrows, and leave her before winter, to shift for themselves. Hibernating mammals require to be in good condition when they retire to winter quarters, which the females could scarcely be, did they rear young late in the season. This spermophile, and probably the rest of the genus, produce but one litter of young a year.

The natural food of the striped spermophile is the grasses, with their seeds and roots, as well as those of various other herbaceous plants, and even the most minute seeds of annuals. Mice and insects are also known to form a part of their food. Many of our farmers suppose that this animal feeds, in winter, upon stores of provisions laid up in its hole for that season; for, though it spends the winter in a state of profound torpor, it collects food in its burrow. This is done in spring and summer, as well as in autumn. Considerable stores of grain, seeds, roots, &c., are found thus collected, in large side-chambers, excavated for their reception, in the burrow. Corn, wheat and oats are stored up, when taken from the newly planted fields in spring, with buckwheat and winter wheat later in the season, as well as heads of grain taken from the edges of the fields in harvest time. I have seen more than a quart of crab-apples taken from the burrow of one which had carried them several rods. George and Frank Kennicott inform me that they observed one, the burrow of which was near a lone burr-oak, on the prairie, to carry great quantities of acorns into his hole; and another was killed by them, the cheek-pouches of which were crammed with the dry ovaries of a prairie plant, the seeds of which were exceedingly minute. From this it would appear that the striped spermophile, at all seasons, carries portable articles of food to its burrow to be eaten. He certainly takes no food from the time he first becomes torpid, in autumn, until he again becomes active, late in the following spring. In Northern Illinois, these animals generally go into winter-quarters late in October, usually

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this spermophile's first appearance in spring, as noted in the meteorological register of Mr. Edward Bebb: "1851, April 10th; 1852, April 11th; 1853, April 2d; 1854, March 29th; 1855, April 12th."

Among farmers, this spermophile has a bad reputation, in consequence of its injuring corn-fields by digging up newly planted seed, in spring. Persons residing on newly-broken prairie inform me that they sometimes suffer severely from the prairie-squirrels. It is said that large corn-fields have to be replanted, where they have been at work, while, in some districts, every corn-field is seriously injured by them. No sooner is the corn planted, than they begin to work at the edges of the field next to their burrows. They show much intelligence in following the rows, sometimes digging up every hill for several rods, and this before, as well as after the corn has sprouted. They are industrious, and take up a great deal of corn in a day, which, apparently, is always carried to the burrow. In such districts, farmers agree that their injury to corn-fields is on so extensive a scale as to render the destruction of the prairie-squirrels a matter of serious interest. They also do more or less injury, by digging up garden seeds, such as peas, melons, &c., and, though rarely, are more seriously injurious, by destroying apple and Osage orange seeds in nurseries. I am not aware, however, that they are ever accused of gnawing bark, destroying growing vegetables, or, in fact, of injuring the farmer in any other way than by devouring grain and seeds. In consequence of this reputation for mischievous habits in the corn-field, farmers all appear to think it a good deed to kill a spermophile. But they should not be too hasty; for, as far as the present species is concerned, there is something to be heard in its favor. In the Patent Office Report for 1853, page 68, Dr. Hoy has shown that this animal feeds upon mice and insects, when in captivity, and he further informs me that he has examined burrows in which the numbers of the skins of meadow-mice found sufficiently proved the appetite exhibited by his caged specimens to be natural. Those observed in captivity, killed and devoured

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whenever they can be obtained; and the high probability is, that their good offices in the destruction of these, far more than counterbalance their occasional injury to corn-fields. I doubt their being so very injurious in long-cultivated farms. The first few crops of corn planted on newly-broken prairie, inhabited by striped spermophiles, suffer from their ravages; and so a hue and cry is raised against them, and their actual depredations are much exaggerated. This animal disappears before the plow, and, as it will never leave its burrow for any great distance, it does not generally invade well-cultivated fields, nor attack corn except at the sides of the field next to wild prairies or meadows inhabited by it. In Northern Illinois, I have observed large corn-fields, raised on farms in the meadows of which this spermophile abounds, where, if it does any harm at all, it is so inconsiderable as not to be noticed. Dr. Hoy says that in a large neighborhood in Southern Wisconsin, where these spermophiles are very numerous, he knows of but one farmer who kills them, nor is he able to hear that they do any considerable injury.

When, in newly cultivated districts, it becomes necessary to exterminate the striped spermophile, it can be done with ease. It is readily trapped or shot, and a few bucketfuls of water will always drown one out of its hole. But in killing this animal, let farmers consider whether they are not destroying a friend. Let all observe critically how many mice, grasshoppers, &c., it destroys, and then treat it accordingly. This species suffers but little, when at all, from rapacious animals. It leaves its burrow with so much caution, and is so constantly on the alert, as to be rarely exposed to their attacks. Hawks are not observed to catch, nor even to hunt for them.

GRAY PRAIRIE-SQUIRREL.

[PLATE IX.]

Spermophilus franklinii, SABINE.

DESCRIPTION.—Length, about 10 inches from the nose to the root of tail; the tail

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bushy than that of the striped spermophile, but much less so, as well as much shorter, than that of the migratory species. It is not so light and active as the striped spermophile, though more so than some of the genus.

The gray prairie-squirrel (gray-gopher, of Northern Illinois) exists throughout the prairie regions of Wisconsin, Illinois, Missouri, Iowa, and probably Minnesota. It is abundant in South-eastern Minnesota, and was observed by Dr. Hoy, in Eastern Kansas. It is also said to exist a great distance to the north and west. It is found much further south in Missouri and Illinois than the Spermophilus tridecimlineatus. It is far less numerous here than the striped spermophile, and appears to be a less abundant species wherever the two exist. It is observed to inhabit the thickets of low bushes, and the edges of the timber, more than the other, but does not occur in the woods. It is fond of digging long burrows in the banks of ditches, and several times I have seen it living in steep river banks, as well as under small wooden culverts in roads. It is not so shy as the striped spermophile, and takes up its residence quite near dwellings. It is also less disturbed by the cultivation of land. In this region it is usually found living alone or in pairs, and I have never observed a number of burrows scattered over a small prairie knoll like the semi-villages of the striped spermophile. This is perhaps owing to their small numbers; for the species appears to be naturally gregarious, and, at times, large companies live together, burrowing within a few feet of each other, and several pairs even entering the same hole.

This spermophile exhibits a remarkable disposition to migrate from one field to another. Not only do the males lead a wandering life in summer, but pairs appear frequently to change their quarters, leaving their winter burrow to breed in another, and then, perhaps, hibernating in a third, at some distance from this. In several instances, a company of a dozen or more have been observed to appear in a locality where none were seen the previous summer, and then to disappear after remaining there a year, or only a few weeks. In the early part of summer, twenty or thirty

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uttering, as they entered, a remarkably clear whistling twitter, more musical than the voice of any other mammal I ever listened to, and as clear as that of a bird. The same note was uttered when the animal was hurt or much frightened. They fed upon June-grass, clover, timothy, and the broad-leaved plantain, and seemed particularly fond of the leaves of the common mustard, of which some plants grew near their burrows. Other specimens, examined in summer, had their stomachs filled with grass alone. In eating, they sat upright on the tarsi, and used their fore-feet as hands, to draw the leaves to their mouths, though their paws were used thus with less facility than those of the true squirrels. Though both the vegetable and flower garden were situated within five rods of their burrows, I do not remember that they were observed to injure either. A number of young chickens disappearing, however, and the eggs being eaten in several hens' nests, near the burrows of the spermophiles, suspicion rested upon them —probably unjustly—and a war of extermination was commenced. Several were shot, while others were killed with clubs, whereupon the survivors left, in a body, as suddenly as they had come, and were never seen again, nor could they be found upon any part of the farm. I have known this spermophile to take refuge in a hollow tree, crowding up the hole like the gray-rabbit. Mr. F. C. Sherman, of Chicago, informs me that he twice saw one, when pursued, climb five or six feet up the trellis-work and vines at the side of a house.

The burrow of this species is usually deeper than that of the striped spermophile, but otherwise similar to it. The young I have not observed, but Mr. George S. Parker, of Pecatonica, Illinois, writes me that he once saw five, and at another time seven young in a nest. They appear to go into winter-quarters in the fall, and reappear in the spring, at about the same time as the striped spermophile. They have been found hibernating under piles of rails and in corn-shocks, and I am informed of two instances in which one has been found torpid in a hay-stack, where he had formed a burrow in the hay. I have never heard of the striped

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This species is carnivorous, though apparently less so than the striped spermophile. The specimen kept by Professor Baird was decidedly carnivorous, but one observed by Dr. Hoy did not eat mice, though it killed them when placed in its cage. Its food is generally similar to that of the striped spermophile, stores being also found in its burrow. It gnaws hard substances more than the striped spermophile, and while the latter will not gnaw out of a box, this readily does so. Caged specimens cut open hazel-nuts, also.

This squirrel injures the farmer by taking up newly-planted corn, as does the striped spermophile. Being far less abundant than the other, however, it is usually less complained of on newly-broken land; but it is sometimes the more injurious of the two on old farms, where it burrows in cultivated fields more willingly than the other. It frequently burrows, during summer, in grain-fields, where it eats the green plants, and afterwards the heads of grain, as the kernels fill; and in this manner, by throwing down the standing grain, spoils it for some distance around the burrow. Having a great predilection for burrowing in ditch-banks, and in under drains, filled with brush, it often does serious injury in this way.

This species may be destroyed in the same manner as the preceding, though they are not so easily drowned out of their holes, especially when they are in a bank or drain. They appear to leave their burrows with less caution, and for a greater distance, than the others; and, being also less active, they are sometimes chased and killed with a stick. They are, probably, more liable to the attacks of rapacious animals than the others. I have known domestic cats to catch them, when full grown.

It is possible that the striped spermophile drives off this species, as the two are not found occupying the same field.

PRAIRIE-DOG.

[PLATE IX.]

Spermophilus ludovicinus, Ord.

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also found over a large extent of country at the southward, and it has also been observed as far west as California. At the southward, Captain Marcy found it above Cross Timbers, on the Red river of Louisiana. Though not properly included among the mammals of this region, some notice of this species may not be amiss here. It has more resemblance to our gray spermophile in color, and to the wood-chuck (*Arctomys monax*) in form, than to any other animal known to our farmers. Its habits are not unlike those of our gray and striped spermophiles. Like them, it is strictly a prairie animal, subsisting upon plants, and, probably, on some insects.

The prairie-dogs are fond of each other's company, and live together, in great congregations, their numerous burrows situated close together, being called "prairie-dog towns." The burrow is much deeper and more extensive than that of either of our two Illinois prairie-squirrels. Like these, it is fond of standing erect near its hole, ventures from it with caution, and hastens into it when alarmed; but, as if it were inquisitive, soon puts out its head again to look at the cause of its fright. Like the rest of the genus, it hibernates. Its note is said to have gained it the name of "Prairie Dog," but its voice can scarcely bear much resemblance to the bark of a dog, and is probably more like the whistling chatter of our gray and striped spermophiles, though perhaps less musical and clear.

Numbers of our common prairie rattlesnakes, (*Crotalophores tergeminus*,) as well as of a small owl, live habitually in the burrows of the prairie-dog. These can hardly be welcome guests of the rightful inhabitants. Though the owl probably feeds chiefly upon insects, it might devour the young; and the rattlesnake certainly does, as well as makes many a meal of the adults.

WOOD-CHUCK, OR GROUND-HOG.

[PLATE X.]

Arctomys monax, LINNÆUS.

DESCRIPTION.—The wood-chuck is about 18 inches in length from the nose to the root of the tail, with the vertebræ of the tail about 4 inches. The tail is bushy, but small; the ears and legs short; the body thick and heavy; a full-sized specimen

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westward to the Rocky Mountains. Northward, it is found as far as Hudson's Bay. In this part of Illinois it was exceedingly rare ten years ago, but is now becoming quite common. It is an inhabitant of the woods, where it occupies the place that the spermophiles do on the prairies; and, though it burrows in open fields and in the timber, I am not aware that it ever lives on the prairie, though I have seen it in the prairie groves. At the East it inhabits open fields in preference to the deep woods. This love for open ground is probably acquired. Here, I have most commonly observed it in the heaviest timber, and it is said to be found most abundantly in heavy woodlands in Missouri. It digs its burrow under a log, brush-heap or fence, or among rocks, and particularly delights in rocky bluffs. River banks are also its favorite resorts. At the East, dry pastures and meadows are frequented, where it likes to dig its burrow under a fence or stone wall, with an opening on each side.

This animal is fond of clover, and, where it abounds, a clover meadow is sure to be occupied by it, sometimes to the no small damage of the crop, which it injures by treading it down around the burrow. It is also very fond of peas, and never fails to visit a pea-field situated near its retreat. Corn and other grain are sometimes pulled down and eaten by it. It is, however, only near the burrows that it is seriously injurious, as, like the spermophiles, it leaves these with great caution, and only for a short distance.

When surprised away from home, this species always attempts to retreat to its hole, running or moving by short and awkward jumps, made, apparently, with much effort. It manages to get over the ground with greater speed than might be expected, considering its form, though a man can outrun one in a race of several rods. It is very watchful, and, when feeding, will frequently stand erect, with the neck stretched as high as possible, and look suspiciously about. It usually stands on the hind feet, in feeding, as it frequently does at other times.

From four to six young are produced each season. These are brought forth in the early part of summer, and before fall leave the mother, to dig their own burrows and shift for themselves. The female exhibits considerable affection for her young, and seldom deserts them when in danger. The old males appear to lead a solitary life, in summer, like the spermophiles, leaving the fem-

is strictly herbivorous. Though living in the woods, it does not eat nuts nor gnaw bark, nor am I aware that it ever digs roots. It is not a tree climber, though it sometimes crawls up a leaning tree, or into the thick branches of bushes, overgrown with vines, on which it is fond of lying in warm sunny days. In this vicinity I have often found them taking refuge in standing hollow trees, entering a hole at the ground, and climbing up the cavity, in the manner of the gray-rabbit.

When fat, which they usually are in autumn, wood-chucks are esteemed by some as good eating, if properly cooked. They are sometimes baked whole, or are better if parboiled in milk, and afterwards "potted down."

The fur of this animal is of no value, but the dressed hide is very tough, and highly esteemed among the backwoodsmen for making whip-lashes, money-pouches and various other articles of use.

MEADOW-MICE.

Of meadow-mice, we have many species, some being found in nearly every part of the United States. They all resemble each other; and, where several species are found in one locality, they are commonly considered by farmers as one animal, known under various names, as "Short-tailed Field Rats, or Mice," "Bear Mice," "Bullheaded Mice," Ground Mice," "Bog Mice," &c., while many persons call them "Moles," though they are not in the least related to that family. They are all of small size, with shorter and heavier forms than the true mice; the eyes are small; the ears short and mostly concealed by the fur, which is soft, thick and very generally of a dark color on the upper parts; the head is large; the snout blunt; and the tail short.

The food and general habits of the different species are much alike, though some prefer high, and others wet ground; while

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consume some insects in summer; and they may even obtain a few, with the pupæ and eggs of more, concealed in the grass, traversed by them in winter. Some kinds, at least, lay up stores of food for winter. All are active at this time, moving about in the coldest weather, and never hibernate like marmots.

One characteristic, certainly posessed by all the species in common, is their ability to destroy the products of the farm. I know of no mammals more injurious to the farmers in Northern Illinois than these seemingly insignificant little meadow-mice. Few, if any, escape their depredations, though the full amount of damage done by them is but little known; and yet they are usually thought even unworthy of consideration. Such of our farmers as cut their corn and leave it standing in shocks for some time in the field, as is usually done here, will find upon examination that in many, if not every one of the shocks, there may be found one or more pairs of meadow-mice, which have dug for themselves burrows in the ground beneath, and have often carried thither a store of corn; while in these, or ensconced in the protecting corn-stalks above, they have built themselves a nest, in which they can lead a very comfortable sort of life, regaling themselves, when hungry, upon the corn. Now, a pair of mice will not, it is true, eat enough corn to alarm a farmer for the safety of his crop; but let any one examine a large field of corn, thus cut and left standing on the ground a month or two, where these mice abound, and carefully estimate the average amount of corn destroyed in each shock, observing that which has been buried in the burrow; and then multiply that by the number of shocks inhabited by these pests, and it will be often found that they have really consumed or destroyed a large amount. In meadows, they do much injury by devouring the roots and stems of timothy, clover, and other plants used for hay. This mischief, however, is seldom noticed by farmers; or, if it is at all, in districts where moles abound, all the blame is laid upon them, as indeed, is very much of the damage done by meadow mice, wherever the two exist together. They also do great mischief by killing young plants in grain-fields; and, soon after the seed is sown, they destroy many of the grains, little stores of which may be found collected in shallow excava-

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dug down, guided by the growing blades, and taken off the grain. In a nursery, where apple-seeds were planted in autumn, I have observed that, during fall and spring, so many of the seeds were dug up by these mice as to leave long gaps in the rows of seedlings, the empty shells of the seeds being found lying about the rows from which they had been taken. They congregate in stacks of grain and hay, sometimes in exceedingly great numbers, destroying all the lower parts, by cutting galleries through them in every direction.

The greatest mischief done by meadow-mice, is the gnawing of bark from fruit-trees. The complaints are constant and grievous, throughout the Northern states, of the destruction of orchard and nursery trees by the various species of arvicolæ. The entire damage done by them in this way may be estimated, perhaps, at millions of dollars. If any think this too large an estimate, let them inquire, even in a small neighborhood, where much attention is paid to fruit-growing, and it will be found that, wherever they abound, the injuries committed by these pests are frequently among the most serious difficulties encountered by the pomologist. This is especially the case at the West, where no care is taken to protect the trees against them, careless orchardists allowing grass to grow about the roots of their fruit-trees, and thus kindly furnishing the arvicolæ with excellent nesting places, in winter, and rendering the trees doubly liable to be girdled. In the nurseries, in Northern Illinois, I have seen whole rows of young apple-trees stripped of their bark for a foot or two above the ground. Thousands of fruit-trees, as well as evergreens, and other ornamental trees and shrubs, are at times thus killed in a nursery in one winter. The mice are most mischievous in winters of deep snow. It is usually thought that they only gnaw bark when no other food is to be obtained; but it is more probable that this is palatable to them at all times. Confined specimens, while abundantly supplied with food of all kinds, ate the bark from twigs placed in their cage. One reason why fruit-trees are most girdled in times of deep snow is, that the meadow-mice can then better move about, at a distance from their burrows, being protected by the snow, under which they construct numerous pathways, and are thus enabled to travel comfortably in search of food.

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often accused of gnawing bark from trees, when the mischief has really been done by meadow-mice. Many times, in spring, when a florist uncovers some choice plant he has carefully protected during the winter by straw, &c., he is grieved and chagrined to find, instead of a fine dianthus, or half-hardy rose, two nimble, black-eyed arvicolæ, which have found good winter quarters in the shelter provided for the plant that has furnished them food. Not a little injury do they to vegetables of all kinds, destroying young plants of peas, beans, cabbages, &c., as well as digging up seeds of all sorts, and gnawing potatoes, beets and other roots. In short, the catalogue of their depredations is endless.

It is related that, some 40 or 50 years ago, a European meadow-mouse (*Arvicola agrestis*) was so numerous and destructive in parts of England as to cause great damage and serious alarm, ruining whole grain-fields, and threatening to destroy all the young trees in the New Forest and Forest of Dean. In the latter, alone, no less than thirty thousands of these animals were entrapped in three months, while great numbers were killed by birds and beasts of prey. This great increase was, beyond doubt, owing to the destruction of the animals appointed to keep them in check; hence let those of our farmers who, in their ignorance of nature's laws, wantonly destroy them, beware, lest the arvicolæ also multiply to the same alarming extent in this country.

Meadow-mice are very prolific, bringing forth young several times a year, and usually as many as five or six at a birth. To check this enormous increase, they have numerous natural destroyers. Though mostly nocturnal, they are also active by day; and one of their greatest enemies in this vicinity is the northern shrike, or butcher-bird, (*Lanius borealis*,) the food of which consists almost wholly of arvicolæ and a few prairie white-footed mice, (*Mus bairdii*,) during his sojourn with us, in his spring and fall migrations. This bird takes his stand, day after day, upon the same tree or fence-stake, and from this post surveys the surrounding fields, in which no mouse may now show himself in safety. The result of the shrike's watchfulness and prowess may be seen, in part, in the bodies of the numerous mice fastened in the branches of bushes or on fences, sometimes partly eaten, sometimes having only the brains taken out, but oftener entire. Considering what he has devoured, besides these, the large num-

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dreaded by the meadow-mice. Though feeding more upon insects than its larger cousin, and being, perhaps, a less successful mouser, its destruction of arvicolæ in summer is well known, and has gained for it the name of "Mouse Bird" in Central Illinois. This bird not only pounces upon them when they are moving about, but finds the nests on the surface, and digs out the inmates with its bill and claws. A domesticated brown sand-hill crane, (*Grus Canadensis*,) which I kept for several years, spent much time in hunting about the fields for the nests of meadow-mice. He became expert in finding them; and, when they were situated upon or near the surface, he would dig them out with his long and powerful beak, and, after first killing all the inmates, proceed to swallow them whole, with much apparent relish. In spring, I have seen him thus destroy several families of old and young arvicolæ in a day. Cranes are omnivorous, and large feeders, and if all are as good mouse-catchers as my pet, they must destroy great quantities on the prairie. The owls, also, devour them to some extent, in the timber especially; while the short-eared owl, (*Brachyotus cassinii*, of Brewer,) which is strictly a prairie bird here, feeds largely upon them. This owl is diurnal, and may be seen flying low over the surface, in search of meadow-mice, in broad day, both in winter and summer. The hawks all prey upon them, too, from the little sparrow-hawk to the great red-tailed buzzard. The marsh-hawk lives mostly upon them in this region, and is observed sweeping along close to the ground, hunting for them in every field. Dr. Hoy informs me that, near Racine, he observed, in autumn, a flock of black-hawks, (*Archibuteo sancti-johannis*,) twenty or thirty in number, to frequent a high knoll, to which numerous meadow-mice had been driven by the inundation of the surrounding low-lands. This they visited, morning and evening, for over a month, during which time they appeared to feed upon nothing else than meadow-mice. One of them, shot late in autumn, was exceedingly fat, and had the remains of four full-grown arvicolæ in his stomach. Dr. Hoy estimated the number destroyed by the flock, in six weeks, at over eight thousand. He says that they form the chief food of this hawk, in the West, and that it should be regarded as a friend to the farmer, the more so as it does not make predatory descents upon the farm-

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can readily enter their burrows, and is certainly more or less nocturnal; so that the arvicolæ, when out at night, fall an easy prey to this voracious reptile, which, though noted for its ability to endure wonderful fasts, even of a year or more, in captivity, is, nevertheless, a huge feeder naturally. I have taken the partly-digested bodies of five adult arvicolæ, with the remains of two small garter-snakes, and some birds' feathers, from the stomach of a rattlesnake, and have repeatedly found the remains of several mice, in various stages of digestion, in the stomach of one of them—showing that they had been caught at different times. And I would here remark, that I have little faith in the opinion, popular among farmers, that rattlesnakes eat only at long intervals from choice. Observation indicates the contrary. Meadow-mice are also devoured by the common large striped, or garter snake, (*Eutænia sirtalis*,) and are undoubtedly eaten by another garter-snake, (*Eutænia radix*,) which is our most abundant snake on the prairies. They are also found in the stomachs of the milk-snake, (*Ophibolus eximius*,) and of the large fox-snake, (*Scotophis vulpinus*.) All the larger snakes probably prey upon them in other localities. The most abundant species of arvicolæ, in this region, are inhabitants of the prairie, and have less to fear from the small timber-loving carnivorous mammals, than those living in the woods. Minks, skunks and weasels, however, when inhabiting the prairie, devour many; foxes, also, eat them, and prairie wolves dig open their burrows and feed largely upon them. Badgers, no doubt, also destroy many. As stated, in noticing the striped spermophile, that animal makes many a meal upon them, as well, perhaps, as Franklin's spermophile. Domestic cats hunt them eagerly, eating them in preference to house-mice. It is to be observed that the flesh of the arvicolæ is sweet and delicate, without the disagreeable flavor of the house-mice, being, in fact, quite palatable. Judging from the astonishingly savage and carnivorous propensities exhibited by some specimens, in confinement, it is highly probable that, where abundant, they may fre-

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ral enemies are destroyed. Our farmers kill the small birds of prey with a zeal that would be highly commendable if exhibited in a better cause, while the man is rarely found who does not kill the harmless mouse and insect-eating snakes, with as much eagerness as he would destroy the really objectionable rattlesnake, which is the only poisonous reptile on the prairies of Illinois and other Western States.

Let one of our prairie farmers, who regard these pests as "inoffensive little mice, that only steal a few kernels of corn," investigate their habits carefully for a year, and he will be very apt to conclude that meadow-mice are a kind of farm stock that are "hardy and excellent breeders," but rather expensive "to keep." It may be, that he will think it best to forbid killing, too, on his farm, the prairie hawks, owls and shrikes, as well as harmless snakes. This he will be still more apt to do if he has observed, as I have, that, besides mice, the food of these is chiefly insects. I would ask any observing farmer if the ungrateful and foolish destruction of those friends of agriculture is not a disgrace to a community calling itself civilized and enlightened?

The protection of such of their natural enemies as are not themselves too mischievous, should be the first care of farmers injured by arvicolæ. Any dog, which can be taught to hunt them, will scratch out and destroy great numbers. I have observed dogs, which were encouraged, to spend most of their time, day after day, in hunting their burrows, and thus quite ridding fields of them for the time. On farms, where there is no grain left out in autumn, they will collect under little bunches of hay placed for the purpose, especially if baited with an ear or two of damaged corn; and by examining these occasionally, with the assistance of a dog, many may be killed. Any farmer with young sons, who exhibit a predilection for the "chase," should furnish them with a lot of common mouse-traps, to be bought at the cost of a few cents apiece; and, thus equipped, the juvenile "sportsmen" will often "bag" large quantities of this "game," and be doing far better, withal, than some of their older brothers, who, perhaps, are wasting more costly ammunition, meanwhile, in shooting useful birds.

To wage war effectually against these, or any other of the ani-

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quadrupeds, which are the enemies of the depredators, on a small farm, if his neighbors on every side pursue an opposite course.

A little care will frequently prevent much of the destruction caused by arvicolæ. Farmers inform me that, by putting into small shocks the corn to be left out, it escapes much injury, these animals apparently foreseeing that it would not, in this form, afford them sufficient protection in winter. In preparing half-hardy plants for winter, in gardens infested by arvicolæ, straw should not be used. Inverted sods, placed over tender roses, &c., pegged flat to the ground, do not furnish the meadow-mice a nesting place; and, as it is not the extreme cold that kills plants in winter, but rather the exposure to wet, and sudden changes in temperature, this method is often better, under any circumstances, than covering them with straw. Arvicolæ are always most injurious on farms grown up with weeds, which furnish them nesting places and food at times when they could not otherwise remain, as it is to be observed that they do not burrow on bare ground. Hence, small patches of grass, in large and well-cultivated fields, will always be found full of their burrows, in regions where they prevail. The greatest injury committed by them is the girdling of fruit trees; and here their ravages may often be prevented merely by clearing away all grass and weeds from about the roots. But it must be remembered that they will travel under the snow, on clear ground, to some distance from their burrows; and, therefore, if possible, no uncultivated spots should be allowed within several rods of the trees, on farms much infested by them. I have observed hundreds of apple-trees girdled, in a nursery kept free of weeds, but situated within three or four rods of unbroken prairie inhabited by these pests.

Wrapping the trunks of fruit-trees with strips of muslin, so arranged as to shed rain, may at times be advisable; the same cloth being applied every fall, and removed in spring, will last several years. It is said that neither mice nor rabbits will gnaw through it, when thus applied; but dipping it in tar, no doubt, would be beneficial.

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body, also varies, being usually, however, a little shorter. The colors of the upper parts also vary in different specimens, and at different seasons. Length of a large female, in August, from nose to root of tail, 3¾ inches; tail 2⅞ inches; hind-foot, thirteen-sixteenths of an inch. The upper parts are light brownish-yellow, with a stripe darker along the back. The yellow color is clearest on the cheeks and along the sides. The feet and entire under surface of the body are pure white. Other summer specimens are bluish-gray on the back. Upper parts, of a young specimen, of a uniform blackish ash-color, without any yellow. Though this may rarely be mistaken for the common house-mouse, which it somewhat resembles in form, it is at once distinguishable by its pure white belly and feet.

The white-footed wood-mouse is known under the names of "Deer Mouse," "Buck Mouse," "White-footed Field Mouse," and, in common with the *Jaculus labradorius*, "Wood Mouse," and "Jumping Mouse." It appears to exist throughout the wooded portions of the United States, generally, from the Atlantic to the Pacific. In this vicinity, the Mus leucopus appears to inhabit the timber only. I never observed one on the prairie. It is found in wooded farms, where it is more or less injurious to the farmer, carrying off and devouring grain, destroying various young plants, and occasionally doing much mischief by gnawing the bark of fruit-trees. On the whole, however, it cannot be considered very injurious. Though it may inhabit grain-fields, in harvest time, it is decidedly a timber lover, and never breeds nor takes up its residence permanently in large fields, clear of trees, stumps and logs. Its home is usually in an old stump or fallen log, under the bark of decayed trees, and sometimes in hollow trees, at a considerable height above the ground. It sometimes takes possession of deserted birds' nests, and occasionally builds in the branches of trees. Dr. Hoy informs me that he has seen several of its nests in Southern Wisconsin. They were usually placed among the thick branches of a thorn, at a height of eight or ten feet from the ground. The nests were composed of grass, and were of a globular form, the entrance being a small hole on one side. I have also found nests on the ground, under logs, and once, in August, found a female, about to bring forth young, in a nest of grass, under a small block of wood, on a low river-bottom. I have not observed this species burrowing in the ground, and it appears rarely, if ever, to do so in the woods.

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The white-footed wood-mouse feeds chiefly upon the leaves and seeds of various grasses, and other herbaceous plants, with nuts, acorns, and the seeds of basswood, maple, and other trees; grain is also eaten greedily by it in the fields. It lays up considerable stores of food for winter. Mr. Joseph Kennicott informs me that, in Western New York, he found within a stump, in a clover-field, several quarts of clean seed of red clover, collected by a family of these mice. In storing up buckwheat, beech-nuts and some other nuts and seeds, they strip off the shell, or covering to the kernel, and frequently a quart or two of the cleaned kernels of beech-nuts or various seeds will be found in their holes. Why this is done is not apparent. The mice would scarcely take so much trouble merely to save room occupied by the shells, and these fleshy kernels cannot keep as well when thus deprived of their natural covering.

This species is active in winter, like the rest of the genus, moving about a good deal on top of the snow, as well as below it, and sometimes traveling a long distance at this season. Mr. Laurence Koebelin tells me that, in cold weather, in December, he found one which had collected grass and formed a large nest in a pile of wood within two days after it had been cut.

The female exhibits much affection for her young. These, when small, I have always found attached to her teats, in which way she would carry them off, moving, unless chased, with great caution, as though she feared to injure them. A neighbor relates that, in turning over a log in the woods, he exposed one of these mice, which, instead of jumping off rapidly, moved slowly away along a small log, and was observed to have several young attached to her teats. Her movements being watched with interest, one of the young was seen to be brushed off and fall among the grass, the mother passing on out of sight. The young mouse left was quite helpless, and continued to utter a low squeak. After a while, the mother returned to it, and, though her movements could no longer be observed, the voice of the young mouse ceased, and, upon examination of the spot, it was found to have disappeared with the mother. It is not to be supposed, however, that the young of this mouse are attached to the mammæ of the parent like those of the opossum.

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in the earth at the bottom of its cage. When liberated upon the floor, it moved by sudden springs, holding high its long tail.

This species is active on the ground, and climbs readily. It dreads the usual enemies of small, timber-loving quadrupeds, though being nocturnal, it probably escapes the attacks of hawks. It must be much preyed upon, however, by owls; and weasels are said to be among its worst enemies. I have, in several instances, found the milk-snake (*Ophibolus eximius*) under logs and in old stumps, in suspicious proximity to the nests of this mouse; and other snakes, inhabiting the woods, also probably devour it. That it has numerous enemies is shown by its not increasing more rapidly—since it is a prolific species. I have usually found from four to six young in a nest; and there are two or three litters a year.

This is a beautiful little animal, possessing a graceful form and delicate colors, and would make a very interesting cage pet.

WHITE-FOOTED PRAIRIE-MOUSE.

[PLATE XI.]

Mus bairdii, Hoy and Kennicott.

Description.—Length of the adult male, from nose to root of tail, 2⅞ inches; tail, (vertebræ,) 1⅞ inches; hind-foot, ¾ of an inch. Head and body of a large male, 3¾ inches; tail, 2 inches. In another specimen, the head and body, 3 and three-sixteenths inches; tail, 1¾ inches. In spring, the hairs on the upper parts are plumbeous at the base, tipped with ashy and yellowish-brown; a few longer hairs, entirely black, interspersed. The tips of most of the hairs deepen into black along the back, giving a broad, black stripe, when the hair lies flat. In some specimens this stripe is not so dark as in others, but is quite distinct in all, while in some it is pitch-black. On the upper lip, and entire under parts of the body and legs, the hairs are plumbeous at the base, tipped with pure white. The cheeks and lower edges of the color of the upper parts, are yellowish, forming a border between the colors of the belly and back. There is a distinct line of demarcation between this yellow border and the white belly. On each side of the root of the tail is a bright brownish-yellow spot, formed by the termination of the yellowish line on the side. The hairs immediately about the root of the tail are ashy-brown. The ears, upper part of the tail, and a distinct spot on the top of the fore-foot, are brownish-black. The nails and toes of all the feet, and the tops of the fore-feet, back to the blackish spot, are pure, creamy-white. In some specimens, the hind-foot is white nearly back to the

different specimens. When young, the upper parts are dark ashy-brown; darker along the back, and faintly tinged with yellowish on the cheeks, sides and flanks. Like the preceding, this species varies a good deal in size, and somewhat in the shades of coloring. This mouse may be distinguished at once from its nearly allied congener the Mus michiganensis, of Audubon and Bachman, which species Dr. Hoy has detected inhabiting the open woods near Racine, by its pure white belly, and by the distinct line of demarcation between the color of the belly and the yellowish-brown border on the sides. It will be very generally mistaken for the Mus leucopus, which it much resembles in form and color. Upon comparison, it may be readily distinguished, however, by its smaller size, much shorter tail, darker color, with usually a black dorsal stripe, more distinct than that in the Mus leucopus, and by its having the upper part of the tarsi ashy-brown instead of pure white, as in that species. Moreover, the one always inhabits the prairie, and the other the woods.

The Mus bairdii is found abundantly on the prairies in Northern Illinois and Southern Wisconsin. Mr. Samuel Arny sent me a number of specimens from Bloomington, McLean county, Illinois, where, he informs me, it is common; and I have received a specimen taken by Mr. Clarence Mills, in Marion county, Illinois. It will, probably, be found in the neighboring prairie regions. It is strictly an inhabitant of the prairies, where it replaces the Mus leucopus. I have never observed it in the woods, even near prairie fields in which it abounds. In Northern Illinois and Southern Wisconsin, this is a much more numerous species than the Mus leucopus. It is confined only to high ground, and is most abundant in cultivated fields.

Not having, on the prairies, the shelter found by its timber-loving cousins, in old stumps and trees, this species digs burrows. These are rather simple, with few or no side-passages, and often with but one entrance, the depth and extent being variable, but never great. The nest is small, composed of soft grass, &c.; it is spherical, and the small internal cavity is entered through a narrow opening on one side. In cultivated fields, the burrows are frequently dug at the roots of fruit-trees, the bark of which is often gnawed, sometimes causing great injury. In nurseries, fruit-trees are often taken up and "heeled in;" that is, laid down close together, with the roots placed in a trench, and then covered in such manner that they are kept safely in a very small space, and can be readily pulled out when desired. The loose earth among the roots of these offers an inviting habitation to the mice; and, in

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arvicolæ. But, during winter they may be tracked in corn-fields from their burrows to the neighboring corn-shocks, which they have visited for food. In spring the young are always produced in burrows. During the summer, however, they are occasionally observed in nests, under bits of wood or bunches of hay, on the surface of the ground. In autumn I have found nests and young in small burrows only a few inches below the surface, or under an inverted sod. I have never observed more than one pair of adults occupying the same burrow; and, unlike the Mus leucopus, this species never appears to be gregarious.

This mouse must be very prolific. I have found the young in March and April, and observed two females, each with five young, apparently but a few days old, about the 10th of November, while they are found in every intervening month. In nearly every instance within my observation the number of young produced at a birth has been five. I once found six, and have, at times, though rarely, seen three or four. The young are found attached to the teats, as in the species last described; and a female was seen to carry five for several rods in this way, jumping along rapidly, despite their weight. As soon as they are able to take care of themselves, the young leave the mother. In summer I have several times found one, apparently but a few weeks old, living alone in a nest made by himself. In spring I have always found the old male living with the female and young; but during the summer I have sometimes observed the male leading a solitary life, and the females and young in burrows by themselves. The food of this mouse on the prairies appears to be herbaceous plants, with their seeds; but I have been unable to see that it ever digs for roots. It is interesting to observe that this, like the Mus leucopus, seeks its food on top of the ground, running on the snow in winter in search of seeds, and collecting them in autumn instead of roots, when it travels as often by springing over the grass as by running through it, while the arvicolæ, both in summer and winter, dislike to leave the shelter of the herbage or snow, never being seen to travel over the grass, but always in runways so constructed as to afford concealment by grass or leaves; and their food consists largely, if not chiefly, of roots dug out of the ground

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placed them all in a cage well supplied with various kinds of vegetables and grain. The next day several of the young were killed and eaten, and in two or three days, they had all disappeared. Shortly afterwards, the male, which had been slightly injured, was found dead, and partly devoured by his rapacious spouse. After this, I fed my specimens with meat, as well as grain, which they ate; and as long as they were supplied with it they lived together harmless; but no sooner was this withheld, than the old ones, both male and female, devoured their young. Though all are more or less carnivorous, they are not generally so bloodthirsty as to devour each other, or their young, when not supplied with flesh. Two, placed together in a cage, and observed carefully for several days, were never seen to fight, even when deprived of animal food. I several times noticed that, when one of these would pull a kernel of corn from the ear, his companion would also seize it with his teeth, and thus each would endeavor to draw it from the other, standing erect upon their hind-feet, pushing with their fore-paws, and squeaking loudly. When one finally got it away, he would run to a corner of the cage and turn his back to conceal the food as he ate it; the other sometimes following, but without ever offering to strike or bite. Caged specimens are very timid; and when teased by having a stick thrust at them, they exhibit no pugnacity, and cannot be induced to combat or cry angrily; and when taken in the hand, they seldom attempt to bite.

I placed a female, with five young, but a few days old, in a cage, and observing that six of the mother's mammæ had been sucked, I placed another, taken from a younger litter, with her, which, to my surprise, she adopted; and several weeks afterwards—they having, in the meanwhile, taken a journey of many miles—I heard that this interesting little family, including the changeling, were all alive and well. This old female constructed the usual globular nest of the cotton and grass placed in the cage; and upon looking into this, I found the young attached to her teats in every instance,

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are used with astonishing rapidity—the earth being thrown back between the hind-legs, which are stretched apart with the pelvis raised to admit the passage of the earth. The voice is very soft, low and clear, and is not often heard. Slight as their incisors seem to be, I have known both this and the Mus leucopus to cut through the shell of a large hickory-nut, the specimens of this species having had no opportunity to see a nut before. This, like the preceding species, is strictly nocturnal—neither of the two ever being found moving out voluntarily by day; and, as observed in captivity, they shun the light, remaining quiet during the day, and becoming active at night.

This mouse is accused of digging up seeds and grain in the same manner as the arvicolæ, which may be true, but better evidence is wanting to sustain the accusation.

LONG-TAILED JUMPING MOUSE.

[PLATE XI.]

Jaculus labradorius.

DESCRIPTION.—The Jaculus labradorius, with several allied species, differs materially from the true mice in form and habits. It is about 2½ inches long, with the tail often twice that length, and always much longer than the body; the hind-foot, from the heel to the end of the longest toe, is nearly 2 inches. At the tip of the tail is usually a pencil of long hairs, though this is wanting in some specimens. The body is of a dark-brown above, yellowish-brown on the sides, and white, or at times rusty-white, on the under surface. The fore-legs are small, but the hind-tarsi are very long, with the legs and thighs large and muscular; which peculiar structure enables this little animal to take leaps of almost incredible length. It travels in this way so rapidly that a man must run fast to overtake it. I am informed that, when alarmed, it has been seen to spring eight or ten feet at once. At times it travels by these long leaps, when not disturbed; but it may also be seen walking or running on all four feet.

This animal is known as the "Long-tailed Deer Mouse," "Fob-tailed Mouse," "Kangaroo Mouse," "Jumping Mouse," "Buck Mouse," "Wood Mouse," and other names, common also to the Mus leucopus, from which it is usually distinguished by the prefix of "long-tailed," or "jumping." It exists probably in the entire northern part of the United States, as well as further to the northward. In this vicinity, it is a much less abundant species than

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tions similar to those occupied by the Mus leucopus. It cannot climb, but crawls up the inside of hollow trees to a considerable height from the ground, and is sometimes found nesting in them; but its nest is often discovered under the bark of rotten trees or stumps; and, though not much noticed when inhabiting these situations, it appears frequently, if not generally, to live in burrows in the ground, as it nearly always does in the fields and on the prairies, of course. It digs readily. Its burrow in summer is not deep, and the nest is sometimes found in a tuft of grass above the surface, or under an inverted sod. In cultivated fields it lives under fences, and, like the mice and arvicolæ, takes up its abode in grain that has been cut and left standing out.

The food of this species appears to consist chiefly of herbaceous plants, with their seeds, and the seeds and nuts of trees, when it inhabits the woods. In cultivated fields it devours grain, of which it has sometimes been observed to collect stores in its burrows. But it does not appear to be very injurious to the farmer; and, as it produces but few young, and has numerous enemies, it will probably never increase so as to become a source of serious damage.

The jumping mouse is so generally confounded with the Mus leucopus that its habits are seldom correctly known among farmers. It is commonly believed to be active in winter, laying up a store of provisions in autumn for consumption at that time. Nuts, grain and seeds, indeed, are found in its burrows, but they are collected, apparently, at all seasons, as in the case of the prairie-squirrels. That this animal hibernates is certain. Godman says that, "at the commencement of cool weather, or about the time the frost sets in, the jumping mice go into their winter-quarters, where they remain in a torpid state." Dr. Hoy informs me that, when he was a boy, in digging out a rabbit in winter, he found a pair of this species in a state of profound torpor, exhibiting all the phenomena of perfect hibernation. They were in a large nest of leaves situated two or three feet below the surface. Audubon and Bachman, ignoring the statement of Godman, say it

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from two to four young at a birth, and, being a hibernating animal, probably not over one or two litters in a year.

PRAIRIE MEADOW-MOUSE.

[PLATE XII.]

Arvicola austerus, LE CONTE.

DESCRIPTION.—Length of head and body of old male in November, 4¼ inches from nose to root of tail; tail, (vertebræ,) 1¼ inches; hind-foot thirteen-sixteenths of an inch, from heel to tip of longest toe. On the back the hairs are deep blue-black at the base, then ringed with cinnamon-brown, and tipped with blackish, a few long hairs, entirely black, interspersed; on the head and along the back the color is darker. Low on the sides and cheeks the hairs are all tipped with cinnamon-brown, without rings, as they are on the belly also, where they are shorter and thinner, and of a bluish-gray color at the base, thus leaving the belly bluish-gray, tinted with cinnamon. Tail and feet thinly clothed with short hairs; tail brownish-gray beneath, blackish above; feet grayish; whiskers shorter than the head, some entirely black, others white with black roots; incisors clear, light lemon-color. The old male in spring differs from the above, in having less black along the head and back, with very little cinnamon on the belly, while around the root of the tail there is a spot of dark cinnamon. In this species the belly is usually more or less colored with cinnamon. Summer specimens from Wisconsin have the hair on the belly all tipped with light rusty-yellow. The young are very dark above, with more distinct cinnamon-color on the belly in the young of some specimens than in the adults.

On the prairies in Northern Illinois and Southern Wisconsin, the Arvicola austerus exists in greater abundance than any other native mammal, and far exceeds in numbers the other species of arvicolæ found here. The extent of its distribution is not yet known, but it will probably be found throughout the neighboring prairie regions. It never has, within my knowledge, been found in the woods. It frequents both dry and wet land, preferring the latter. In summer, these animals inhabit low, wet prairies in great numbers, digging burrows and forming nests in them, as well as on the ground among the grass. In autumn, they retire to higher ground, to spend the winter, being driven out of their summer homes by the heavy fall rains. Their winter burrows on the uncultivated prairie are often in old ant-hills, or if not the

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ity in the centre, which is entered by a very narrow opening on one side. This burrow and nest are occupied in winter, and in it at least the first litter of young is produced in spring; but, in the summer and fall, these meadow-mice may be found in similar nests in the grass above ground, in which the young are often, if not usually, brought forth. Nests formed under the snow in winter, are also occupied by them. From the burrows, innumerable runways traverse the neighborhood, intersecting those from other burrows, thus forming a complete net-work, so that often scarcely a square yard can be found in an acre not crossed by one or more of these tracks. The runways of one pair may sometimes be traced five or ten rods on every side. These roads are not only formed for use in winter, when the ground is covered with snow, but are also employed as highways in summer. They are made above ground by pressing down and gnawing off the grass, and the earth is often worn quite smooth and bare in those most used. The inhabitants can travel easily along them at all times, in search of food, being well concealed by the overarching grass. In winter, these paths are formed on the ground, under the snow, as well as in the grass. The mice do not inhabit prairie pastures, where the grass is eaten close and affords them no cover.

This species is exceedingly prolific. Five young are most commonly produced at a birth; but the number varies from three to six. They are brought forth from early in April till October; and, in one instance, I found suckling young in the middle of November. Of the number of litters produced in a year, I am unable to form a certain estimate. The young, though not generally found attached to the mother's teats, as is the case with some other species, are at times observed in that situation; and a female was seen to carry three half-grown young a distance of several feet in this manner. As soon as they are able to take care of themselves, they leave the mother. In summer, the old males do not live with the females and young, but are generally with the females in

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observed a small garter-snake passing rapidly through the grass, with a young meadow-mouse, partly swallowed, in its mouth. The low squeak uttered by the latter attracted his attention. Presently, an old meadow-mouse emerged from the tall grass in pursuit of the snake. Stopping an instant, as if to listen for the cry of her young, she again pursued, and finally overtook the snake, which she unhesitatingly attacked. The snake stopped, disgorged his prey, and defended himself by striking at his assailant, which appeared to be beating him, when he was killed by Mr. Galloway.

Upon examining, in November, the burrow of a pair of these meadow-mice, situated on the wild prairie, I found the excavation to have been recently enlarged. The nest was placed near the centre of the burrow; and at one side, and in the deepest part of the excavation, was the store of winter provisions. This consisted of five or six quarts of roots, chiefly the round tubers of two species of spike-flower, (liatris,) which grow abundantly in the vicinity, with a few roots of helianthus, and of various grasses, and several bulbs of wild onions. By tracing carefully the numerous and extensive paths which ran in every direction from the burrow, I observed where the inmates had procured their food. The large fleshy root of the rosin-weed, or compass-plant, (*Silphium laciniatum*,) appeared to have been eaten very freely in autumn, at least. The root of this interesting prairie plant is sometimes a foot in length, and an inch or two in diameter at the top. To obtain it, they had burrowed down alongside, quite to the bottom, eating out the entire soft parts. Though so much eaten, none of it was found in their burrows.

The prairie meadow-mouse is not a gregarious animal naturally; and, when more than one pair is found together in fields, it is where they have all been alike attracted by the food and shelter offered by the situation. Though their burrows are sometimes quite near each other on the prairies, this is only when they are very abundant. Two pairs never occupy the same hole.

In cultivated fields, the habits of this species are somewhat changed. When corn-fields are near, they flock to them in autumn in great abundance; and, wherever a corn-shock is to be found, a pair takes possession of it, digging under it a more simple burrow than in the prairie or meadows. Besides the nest in this burrow,

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at some distance. A quantity of corn is carried into the winter burrow under the shock, in spring as well as in autumn, in compliance with the inclination to collect stores of food at all seasons.

By looking in the fields the day next following a fall of snow, in November, I had an opportunity to observe something of what these arvicolæ had been doing in the night. As there was scarcely an inch of snow, they had not generally traveled under it, as they do when it is deeper, by pushing it aside, mole-like, at the surface of the ground, but had moved on top, leaving their plain tracks. In a field containing shocks of corn, they could be traced not only to the shocks they inhabited, but to all others. Some were traced to burrows into which they had carried large stores of corn taken from shocks several yards distant, and others could be tracked for ten or fifteen rods across the field, to where they had entered the grass at the edge of the prairie, having come from their burrows to feed upon the corn. Wherever there was grass or weeds, though only two or three inches high, they had moved under it in preference to going on top; and even on clear ground, where the snow was drifted to the depth of two or three inches, they had passed beneath, leaving it unbroken above. This illustrates, not only the smoothness of their gliding motions, but also their disinclination to travel by springing over high objects. In moving over plowed ground, they did not jump clear across from one ridge of the furrow to the other, but ran part of the way down one sde, and up on the other. When traveling on the open ground, they moved by short jumps of from four to eight inches. Sometimes, they ran or trotted, appearing always to move in this way in their runways in the grass; and, in fact, this is the gait most natural to them. When caged specimens are liberated on a smooth surface, they glide off at this gait with great rapidity, never jumping, but rather running around small objects; though, on the whole, they show more activity than their forms would seem to indicate, springing readily to some distance when so disposed.

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the garden, were also eaten indiscriminately. They also managed to gnaw through the shells of hickory-nuts, though such a thing as a nut could never have been seen by them before. Raw, fresh meat of any kind was eagerly devoured. In short, they were omnivorous. The amount of food consumed by some specimens was astonishing. Three ate, in twenty-four hours, besides other food, the germs from all the kernels on a good-sized ear of corn. At another time, a piece of carrot, measuring over a cubic inch, was eaten by two specimens in one night; though they ate corn, grass, and meat the previous and following days. They drank a good deal of water, soon perishing when left long without it, or some moist food. In drinking they sometimes lapped, but oftener thrust the nose into the water and moved the jaws as in masticating. When eating, they grasped the food in their fore-paws, or sometimes held small particles in one paw, while standing upon their hind-feet, not erect on the haunches, but resting on the foot, (tarsus,) with the back-bone arched, and the body leaning forward. This position was also frequently assumed when they were not eating, and they often stood quite erect, upon the tarsi, or toes, alone, to look about, or to examine anything held above them. In running, the toes only were placed upon the ground. The fore-paws are used as hands, with all the facility of a squirrel, the food being grasped in them, and turned about at pleasure. Upon holding a stem of grass near one, he seized it with his paws, and biting off small pieces with his incisors, chewed and swallowed them rapidly. As I pulled it gently, he grasped it more firmly; and, as I continued to pull, he reached up an inch or two, and cut off the stem with his teeth. A piece of the dry, outer covering of this getting into his mouth, he held that which he was eating from in one paw, and with the other quite readily drew out the unpalatable part without ceasing to masticate. When an ear of corn was placed in the cage, each one would seize a kernel with his incisors, and, bracing his feet against the ear, wrench it out by pulling to one side. In eating, the food was cut into very small pieces by the incisors, before being ground by the molar teeth. They sometimes attempted to crush pieces of meat or vegetables, half the size of a pea, with their molars, but taking them into their paws again, would always cut them smaller with their front teeth.

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push the earth aside, which was also frequently loosened with the teeth. As the hole grew deeper, and was dug horizontally, they sometimes turned over on the back, to dig in that position. In removing the earth from a burrow of some extent, they came out backwards, scratching back the earth, with both hind and fore-feet, as they came.

The ferocity and exceedingly carnivorous propensities exhibited by some specimens of this little rodent are truly astonishing. Adult specimens recently captured and placed together often kill and devour each other, mothers even eating their young. One evening I placed in a large cage two old males taken in different burrows. In the course of the night much fighting and crying was heard, and the next morning one was found to have been killed and partly devoured by his companion. The other was supplied with corn and fresh beef, both of which he ate; and in the course of the forenoon, a half-grown house-mouse was placed alive in the cage. This, without provocation, he at once attacked, as if in great rage, uttering his usual cry of anger, with his hair erected and bristling. In fighting, he sprang upon the mouse, striking with his fore-feet, at the same time snapping quickly with his teeth, and then springing nimbly back. Finally, he seized the mouse by the rump with his incisors, and thus broke his backbone. After this, the latter, which had fought as well as he could, ceased to resist, when the meadow-mouse, catching him in his teeth, threw him forcibly to some distance, and continued to strike, bite, and toss him about until he was dead. His anger then appeared to subside as rapidly as it had risen, and in a few minutes he was observed placidly eating corn. The old males were always very pugnacious, biting and striking at anything thrust towards them. When much teased in this way, they sometimes turned on their backs, snapping with their teeth, and striking with all four feet. When enraged, they uttered a low, harsh, creaking note, resembling that of a very young puppy. If hurt, their voices were clearer and sharper. Sometimes they chattered their teeth in anger. The females were not so pugnacious and more

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WOOD MEADOW-MOUSE.

[PLATE XII.]

Arvicola scalopsoides.

DESCRIPTION.—Head and body of the adult male, in November, nearly 3½ inches long; tail, nearly ¾ of an inch; hind-foot, ⅝ of an inch. Head, large; snout, blunt; ears, concealed by the fur; eyes, very small; fur on the back, soft, glossy and smooth; hairs, plumbeous at the base, broadly tipped with dark-brown on the back, and slightly tipped with white and reddish-brown on the belly. Young, color like that of the adult. This species is readily distinguished from the other arvicolæ found in this vicinity, by its smaller size, glossy fur, large muzzle, small eyes, and very short tail. It is common in the woods in Northern Illinois and Southern Wisconsin, where it is less abundant, however, than the two preceding. This is probably the species mentioned under the name of Arvicola riparius, by Dr. Plummer, in Silliman's Journal, as existing in Wayne county, Indiana.

Unlike the two species last described, this, so far as I have observed, lives exclusively in the woods, or in fields surrounded by timber, though it becomes more numerous in the clearing, and prefers high ground. Its home, as noticed here, is under the leaves, and its mode of life brings strongly to mind the Sorex dekayi, with which, in fact, it is found in every locality in the woods where I have seen that shrew. Its runways are similar to those of the shrew; and I am inclined to think the tracks of the latter are much used by it. It is probable that the arvicolæ may drive off the shrews, and take possession of their ready-made highways, as they are very pugnacious, and apparently able to beat the other, their eyes giving them much advantage over their sightless adversaries. They always travel under the leaves, apparently; and in turning over logs, beneath which were their nests, I have observed that, in endeavoring to escape, they ran *under* instead of *over* the leaves even where there were no paths; nor did they stop to hide in them, but ran off to some distance. When placed on the snow, it attempts to burrow into it, instead of running on top. This species is also more diurnal in its habits than the Arvicola austerus.

I have always found the nest of this arvicola under logs or stumps, whether that of the female, with her young, in summer, or pairs in their winter-quarters, in November. Those observed in fields always burrow under stumps or fences, instead of

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ceeding the length of the log or stump covering it. Numerous paths run in every direction from the burrow, under the leaves; they occasionally pass beneath the surface, and shallow holes are dug, as if in search of food, the earth being thrown out of these, whereby they are easily distinguished from the tracks of the shrew, which presses the earth aside in forming its track. By following these paths, I have observed where the meadow-mice fed upon the roots of grass and various other plants, often digging down several inches for them; and I have in several instances found the bark gnawed from the roots of briars, &c. Hickory-nuts, hazel-nuts, and acorns were also found partly eaten in their tracks. The acorns of the burr-oak and white-oak formed most of the stores collected in such burrows as I have examined. In one instance, I found the nest of a pair of this species in autumn, in part of a burrow occupied at the same time by chipmucks, and in which the latter had collected large stores of acorns and nuts.

This is the smallest of our rodents, and, for its size, I know of no mammal more pugnacious than the males, at least. I placed one in a box with a specimen of Sorex dekayi, which it at once attacked. The shrew was courageous and never retreated, neither did he attempt to pursue the other to any distance. The meadow-mouse acted on the offensive, and made unprovoked attacks, the cage being large enough for both. He approached the shrew cautiously, and when within two or three inches sprang upon him, biting and striking with his feet, and then jumping back quickly, in fact fighting in the same manner as the Arvicola austerus. When he came near, and the shrew made the first attack, the meadow-mouse would rise upon his hind-feet, and strike with his fore ones, and snap rapidly with his teeth. Had the fight been allowed to continue, it is probable that the shrew would have been beaten; for, though much the stronger, and doubtless able to kill the meadow-mouse readily, if he could grapple with him, the latter was enabled, by his sudden springs, to inflict severe wounds, and exhaust his adversary without being much hurt him-

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Caged specimens of this species show less inclination to burrow than the two preceding. In eating they do not hold the food up from the ground, but grasp it in the fore-paws, as it lies upon the surface, sitting meanwhile upon the hind-feet, yet resting in part upon the fore ones, also. Is not this posture the necessary result of their inability to stand erect in their leaf-roofed highways? In digging, the snout is much used to thrust aside the earth, and they sometimes "root" with it, like hogs, in search of particles of food slightly buried in the bottom of the cage, and often eat these without taking them in their paws at all. My specimens were fed upon acorns and corn, and the entire grain of the latter was eaten. But they had all been taken in the woods, and could never have seen this food before, and were doubtless ignorant of the method adopted by their cultivated cousins living in the prairie corn-fields, which, with a very objectionable refinement of taste, eat out only the germ, and thus destroy far more than they would by eating the whole grain. My caged specimens refused to eat flesh of any kind. This species, indeed, is probably less carnivorous than the Arvicola austerus.

I am not informed as to the extent to which this meadow-mouse is injurious here, but in timber-farms it is doubtless as great a pest—and in the same manner—as the prairie species, when equally abundant. Stumps left in fields form favorite retreats for them, from which they are not easily dislodged.

LONG-HAIRED MEADOW-MOUSE.

[PLATE XIII.]

Arvicola riparius.

DESCRIPTION.—Length of head and body of the male, in spring, 4 inches; tail, (vertebræ,) 1 inch; hind-foot, $\frac{7}{8}$ of an inch. The general color of the upper parts resembles that of Arvicola austerus, but there is no black tip to the tail. The belly and under part of the tail are grayish-white. The incisors are bright-orange. The fur on the

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me that he met with a few specimens near Lexington, in La Fayette county, Missouri. The Arvicola riparius is far less abundant in this vicinity than the preceding. Among twenty or thirty specimens of the Arvicola austerus, taken in various localities in the fields and on the prairies, in autumn, there were but two or three of this species. Dr. Hoy informs me that, near Racine, they abound in meadows, in the woods, burrowing under stumps and trees, in situations never inhabited by the Arvicola austerus, as well as on the prairies; but so far as has been observed, this species does not inhabit heavy timber. It appears to be a prairie animal, though sometimes found thus living in timber-lands. Inhabiting both high and low land, yet it shows no preference for wet places, as does the other. It is not numerous in fields in which the Arvicola austerus abounds, though existing in the greatest abundance elsewhere. Considering this, and the greater strength and pugnacity of the Arvicola austerus, it seems probable that the latter drives it off. The burrow of this species is very different from that of the preceding, being simple and of slight extent. It appears also to be more gregarious. I have, indeed, several times found a half dozen or more inhabiting the same corn-shock or potato-heap.

In captivity, this animal is less pugnacious than the Arvicola austerus; but it is much more noisy, also, crying out almost continually, when several are eating together, or at all disturbed. The voice is a harsh, creaking squeal. The food and habits, so far as observed, are, with the exceptions mentioned, the same in this as in the preceding species.

MUSKRAT.

[PLATE XIV.]

Fiber zibethicus, LINNÆUS.

DESCRIPTION.—A full-grown muskrat is about 15 inches in length, from nose to root of tail, and the tail 10 inches. The body is heavy, eyes small, ears concealed, and incisor teeth large; the tail large, nearly naked, and flattened laterally; legs, short, hind-feet, with the toes flattened and partly palmated; beneath the long hair is a coat of dense, soft and very warm fur; color of the body, ashy-brown above, ashy on the under parts.

The muskrat, or "Musquash," abounds in the greater part of North America, the [illegible]

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stout tail and muscular hind-legs, being provided with broad feet and toes, furnish it efficient means of locomotion in the water, while its thick, downy fur protects it from the wet. On land, its movements are as awkward as those of a duck. It naturally seeks its food in the water, away from which it never takes up its abode.

Though frequently seen abroad by day, muskrats are nocturnal, moving mostly by night. They are to some extent gregarious, a number uniting to make houses and burrows. In most localities, where the situation admits of it, they construct houses in the water with much skill; in marshes and ponds, or along sluggish streams, when protected from the current, they form large piles of sticks, leaves, rushes, carices, and various aquatic plants, the whole well stuck together with mud, and having a comfortable chamber in the centre, entered only through a hole from below the surface of the water. This is the winter home of muskrats, more than one pair usually occupying the same nest. Near by, in the bank, is generally a burrow, with numerous and extensive galleries, in which they take refuge when driven from their houses in winter, and in which the young are commonly produced. These burrows, like the houses, always have the entrance under water.

The muskrat is active in winter, seeking his food under the ice, and carrying it into its burrow or house to be eaten. Though roots are sometimes found in a nest in winter, they are only such as have been recently brought in, no considerable stores of food being collected. The food, in winter, appears to consist of roots of aquatic plants. In summer, it also feeds upon the leaves of various plants, as well as upon muscles, (*Unio*, *Anadonta*, etc.,) of which they consume great quantities in some of our rivers. Collecting them from the bottom, it carries them in its teeth to a log or stone, where, sitting upon its haunches, and grasping them in the fore-paws, it opens the shells with the incisors as skillfully as it could be done with an oyster-knife. In this way, large piles of shells are collected around stones and logs, by examining which the conchologist may often find rare species brought from the

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Muskrats are seldom seriously injurious to the farmer's crops, though they are occasionally mischievous in fields adjoining water inhabited by them. I have observed ears of corn dragged to their nests, and they sometimes make great havoc in vegetable gardens, where they show an especial fondness for parsnips and muskmelons. Their greatest injury, however, is committed by burrowing in embankments formed to confine water, mill-dams being often much damaged in this way. They also frequently destroy artificial ponds for collecting ice. Except in eating mollusks, and occasionally a dead fish, I am not aware that this species departs from a vegetable diet.

This species is pugnacious, and resists courageously when attacked. The males sometimes have fierce battles, and trappers state that the tail is occasionally mutilated, or cut entirely off in these combats. The voice is a sharp squeak, and some hunters will call the males within shooting distance by imitating it. From five to seven young—more or less—are produced in April or May. In this region, at least, the muskrat's worst enemy is the mink, which, swimming and diving readily, not only enters their burrows and houses, but pursues them in the water. The mink does not find an easy prey, as the muskrats fight savagely; but emboldened by hunger, he finally kills his victim, when he does not scruple to devour the whole body. Otters probably kill them, also, as they are occasionally found in muskrat houses.

Upon land, the muskrats are easily captured by various mammals and rapacious birds. They are readily trapped, as they are not at all suspicious, which operation, in former times, furnished many a youth with pocket-money, while older hunters made it their chief occupation. A steel-trap, baited with pieces of parsnip, or of sweet apple is generally used; or sometimes a trap without bait is placed in their runways. In winter, they are caught by driving a long-pronged spear through the tops of their houses into their nest, where they are lying together, several being frequently transfixed at a blow from a spear provided with several prongs. The Indians killed them thus, even with their primitive stone-headed spears. Sometimes they are shot, when sitting on the ice

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ping "beaver hats," so called, they were of greater value than at present, being then worth more than the skin of the mink, selling, indeed, for from 40 to 50 cents each. Changes in the fashions of late years, including the general introduction of silk hats, have resulted happily for the persecuted muskrats, and for the last ten or twenty years their skins have been sold for from 8 to 15 cents each, and even as low as 6¼ cents; and trapping them has in a measure ceased. Within the last year or two, however, they have sold for somewhat better prices, being now largely used for making caps, gloves, and some articles of ladies' furs.

In Northern Illinois, the muskrat has not been so long persecuted by man, and therefore has not learned to fear his presence so much as in longer-settled regions. It is accordingly oftener seen out by day here than in the older states, where, in some localities, it is said to be almost strictly nocturnal, and exceedingly shy withal. Here they may not only be found feeding by day, but even at work, building their houses; and, while hunting ducks along the Desplaines river, I have frequently shot them in broad day, as they sat upon logs at the water's edge.

In place of the living brooks and creeks, which drain wooded and uneven lands, we have here, on our level prairies, numerous broad and shallow depressions, that carry off the surplus water in rainy times, becoming dry in summer, except in places where they are deeper and form large basins in which the body of water is so great as to hold out, despite the evaporation in ordinary seasons, while some are constantly supplied by springs, and never become dry. In these prairie water-courses and ponds, or sloughs,* as they are called, the muskrats were very abundant twenty years ago; but, though still occasionally seen in the larger ones, and numerous in some, their numbers are very small compared with their former abundance. In the sloughs, their houses were built like those in wooded rivers or marshes. They usually had bur-

* This is pronounced *sloos*, in our western vernacular, and *slows*, by Walker and Webster. They are called "sloughs," as well when slight depressions, containing water only after rain, or when large marshes. Thus a slough, on high prairie, may have a solid, grassy bottom, or it may be miry and filled with bulrushes and other strictly aquatic plants, the name not being restricted to muddy and miry places, as

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rows in the dry land at the edge of the sloughs, and when there was no spot nearer, sufficiently elevated to be above high water, a burrow would be dug at some distance—sometimes 15 or 20 rods—from the edge of the slough, and approached by a gallery excavated the entire distance under the sod. Some, in very wide marshes, appeared to have no burrows, living always in their large nests. Though the young are generally brought forth in burrows, they were often found in the houses in the sloughs, only one female, however, remaining in a house. The sloughs inhabited by them being of no great depth, and often dried up in summer, or frozen to the bottom in winter, the muskrats were frequently found wandering about in search of water; and even lately I have, in dry summers, occasionally found them on the prairie at great distances from water. Since the prairies have been settled and cultivated, the muskrats are generally observed living permanently only in large marshes, lakelets, and streams; they seem quite as much at home, however, in these, when situated on the prairie, as when in the timber; and old trappers assure me that they have never seen "rat" more abundant than they have been on the prairies of Northern Illinois.

The Pottawatamie Indians call the muskrat *shush-ko;* they eat the flesh, when boiled with corn, or roasted, or cooked in various ways. The hunters and trappers consider the hind-quarters very palatable, when roasted on coals; and they, as well as the Indians, esteem the tail a great delicacy.

TRUE RATS AND MICE.

The species of the old genus Mus are numerous, and all very prolific. Three have been introduced, throughout the civilized world, by commerce. Departing entirely from what must have been their original mode of life, these have taken up their resi-

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man. Its habits and depredations in the house are too well known to need comment. In Illinois, I have found it breeding and living throughout the year in the fields, in considerable numbers. It digs burrows, sometimes in the open ground, at others under corn-shocks, or other shelter, and there collects its store of food, thus assuming the habits of the field-mouse, when adopting its home in the fields.

BROWN-RAT.

Mus decumanus, PALLAS.

This exceedingly troublesome animal is said to have been a native of Persia. It is only within the present century that it has been introduced into this country or Europe. It has spread with such rapidity that it is now abundant throughout all the long-settled portions of the Union, though it is only within a few years that it has been known in our recently settled and interior prairie regions; and in some parts of which, indeed, it has not yet made its appearance at all. It often lives in the fields, like the preceding, and excavates large burrows under corn-shocks, &c., into one of which a pair will sometimes carry a full half bushel of shelled corn. In its burrow, it makes a large nest of the soft corn-husks and silks, or of grass.

Farmers are occasionally surprised by the sudden and entire disappearance of the brown-rats from their houses, where they were abundant a short time before; but, upon making inquiry in such cases, they may also find that some of their neighbors are quite as much surprised, and considerably more annoyed, at the equally sudden appearance of large numbers on their premises; and these migrations are by no means unfrequent.

For figure of the wood-rat (*neotoma floridana*) of the Southern States, see Plate XIV.

BLACK-RAT.

Mus rattus, LINNÆUS.

This species, which seems to have been introduced originally

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lieve it has rarely been found in a few localities in this region, the brown-rat having apparently found its way here before it.

Like the two preceding species, this is omnivorous, feeding upon almost any kind of vegetable or flesh. Both rats devour eggs, and even capture living animals, with all the ferocity of strictly carnivorous species.

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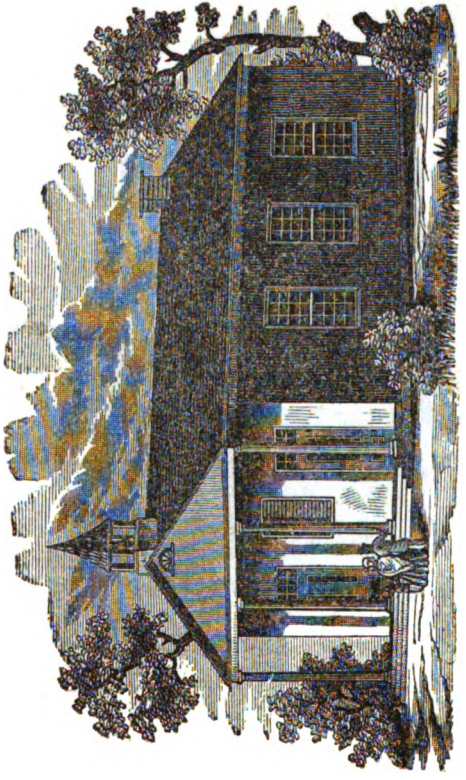

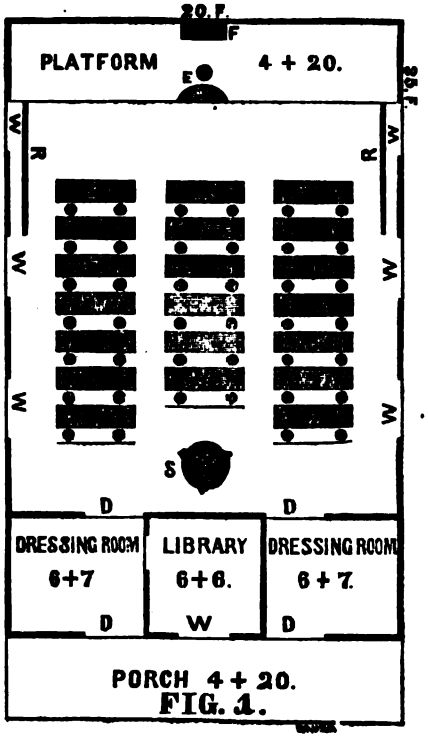

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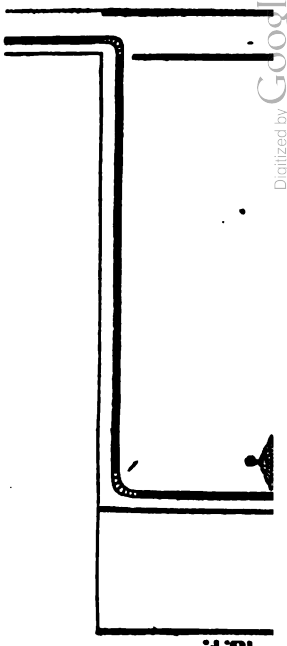

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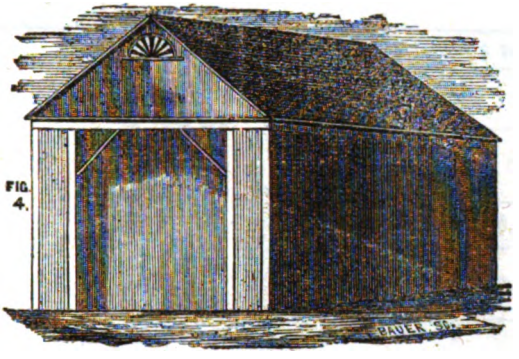

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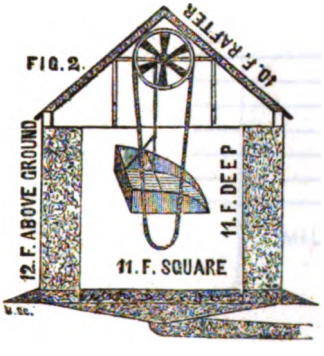

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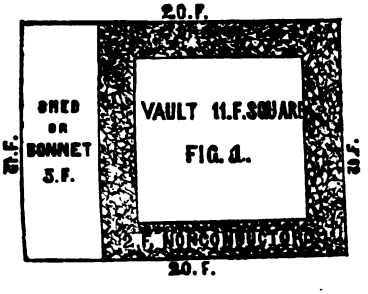

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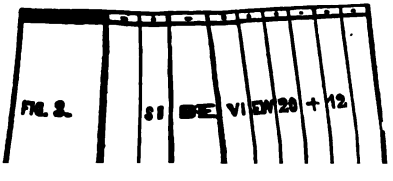

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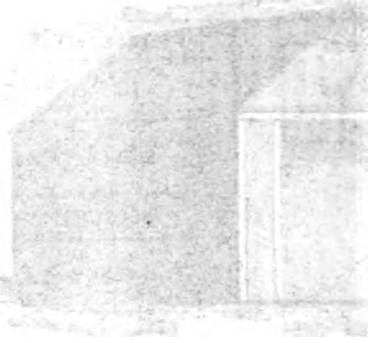

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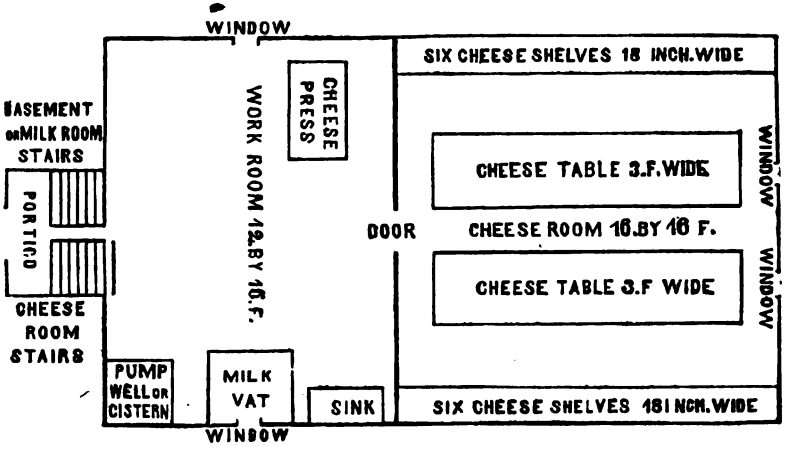

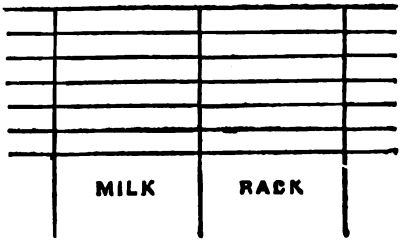

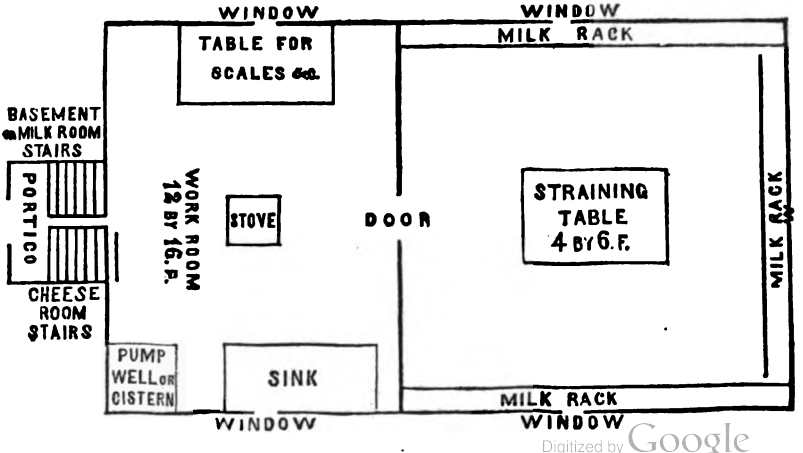

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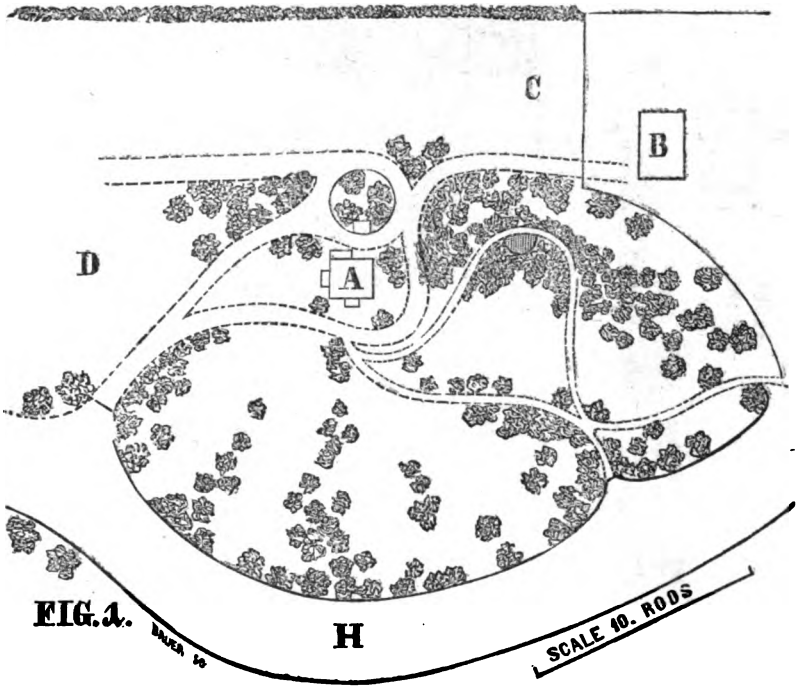

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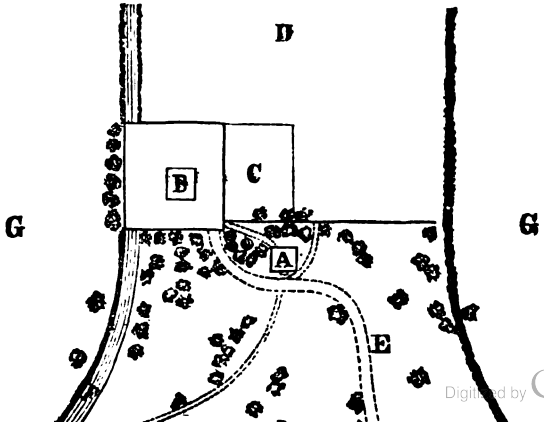

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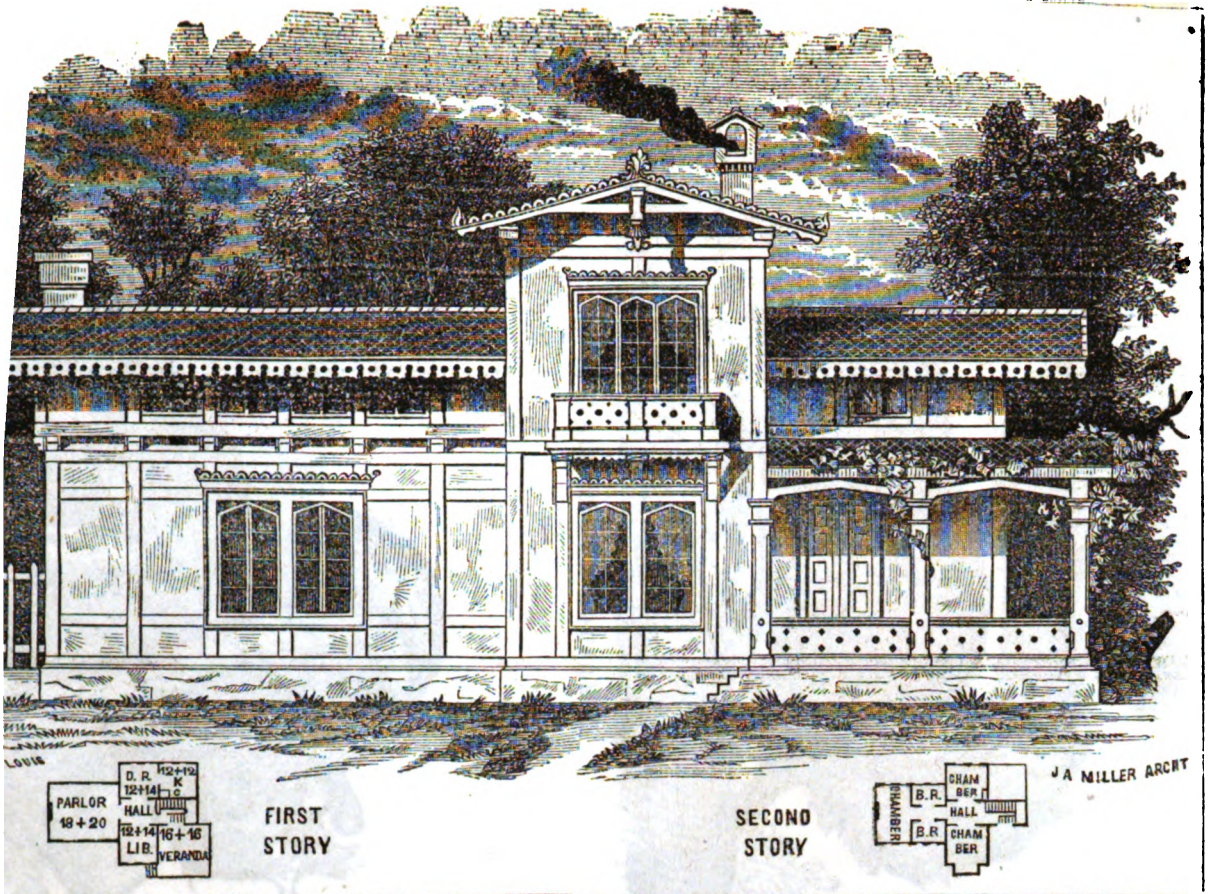

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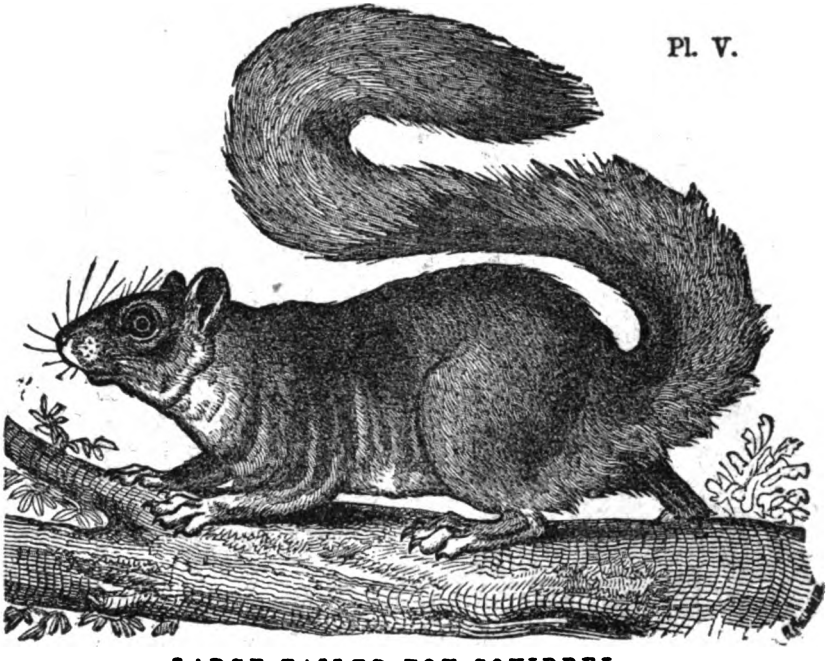
Pl. V.



LARGE-TAILED FOX-SQUIRREL.

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Pl. VI.

MIGRATORY, OR COMMON GREY AND BLACK SQUIRREL.

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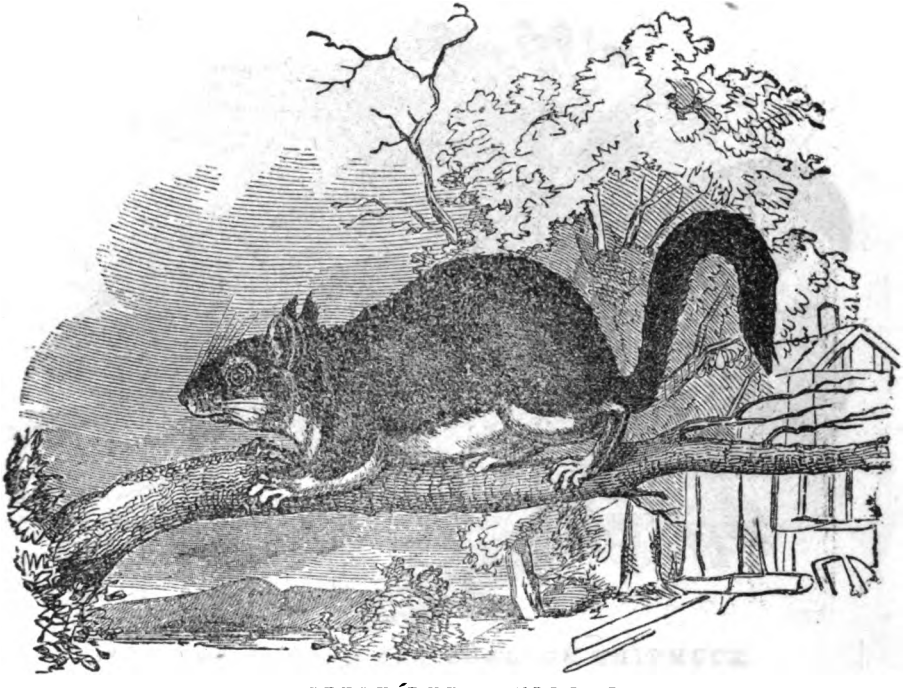

LITTLE RED-SQUIRREL.

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STRIPED GROUND SQUIRREL, OR CHIPMUCK.

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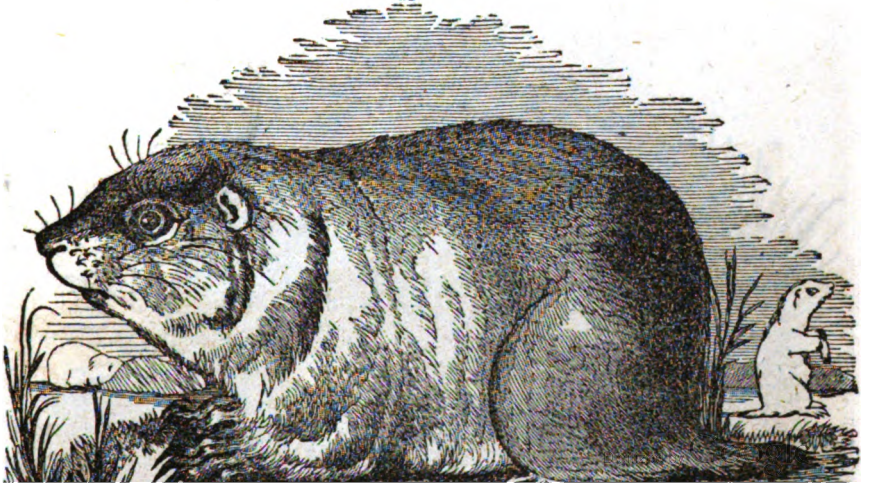
GREY PRAIRIE-SQUIRREL.



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WOOD-CHUCK, OR GROUND-HOG.

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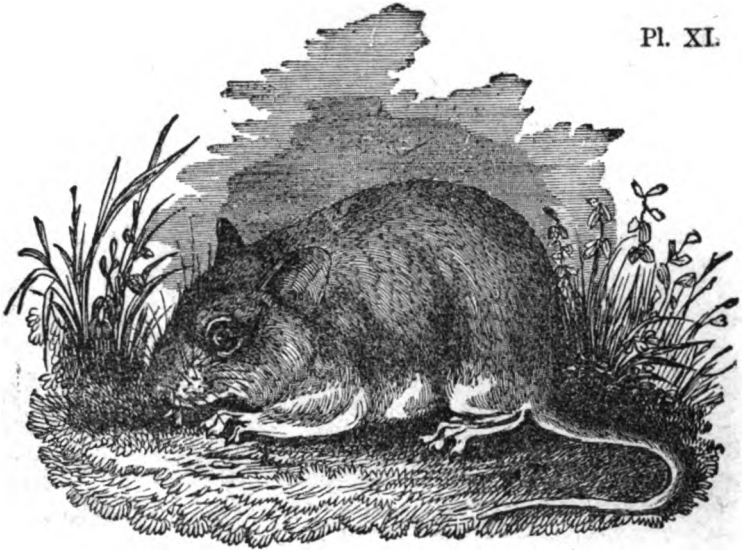

WHITE-FOOTED PRAIRIE-MOUSE.

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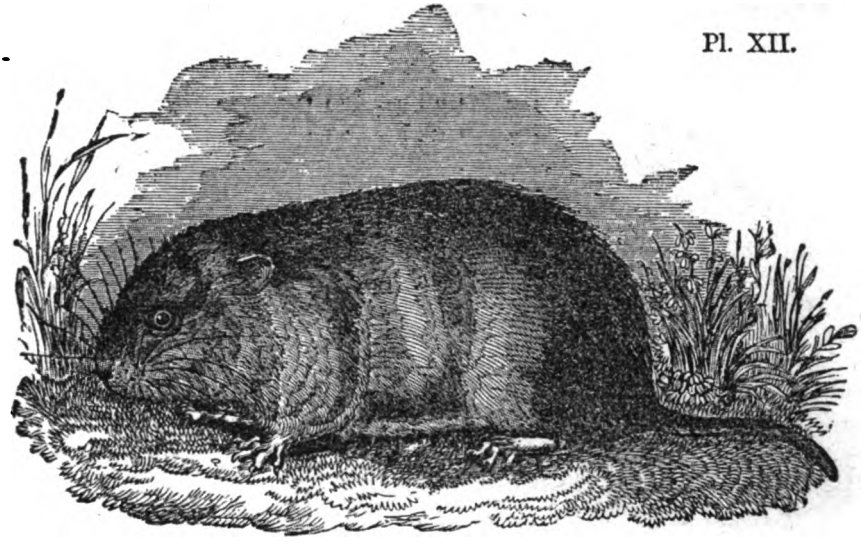
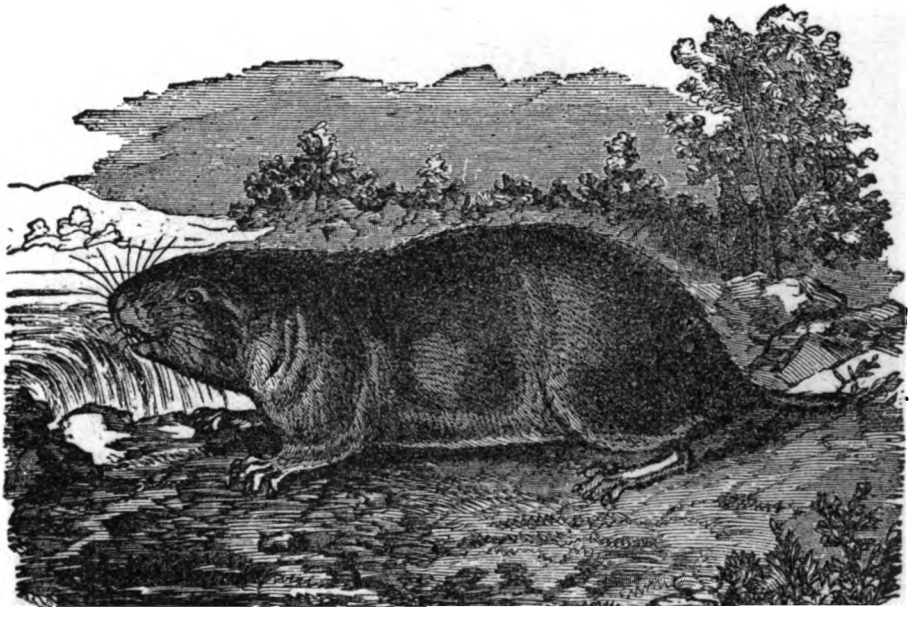


PRAIRIE MEADOW-MOUSE.



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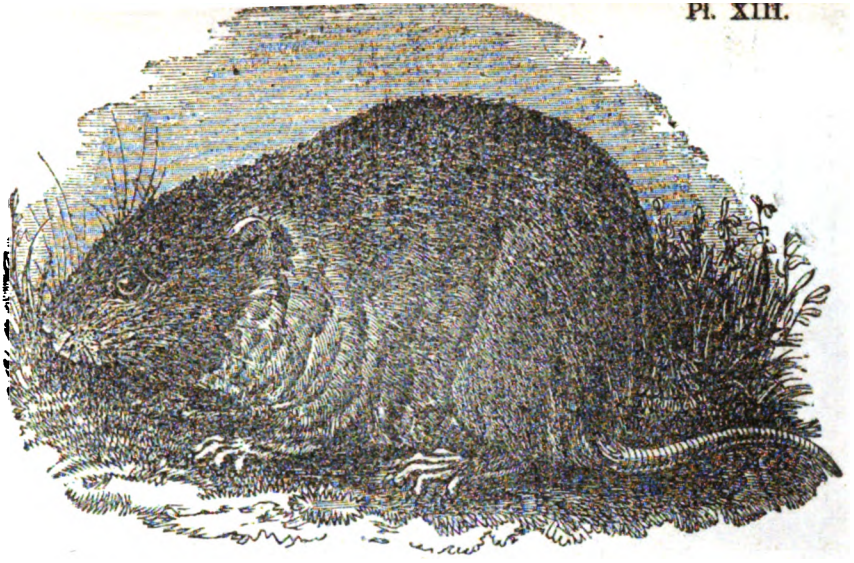

LONG-HAIRED MEADOW-MOUSE.

(MALE.)

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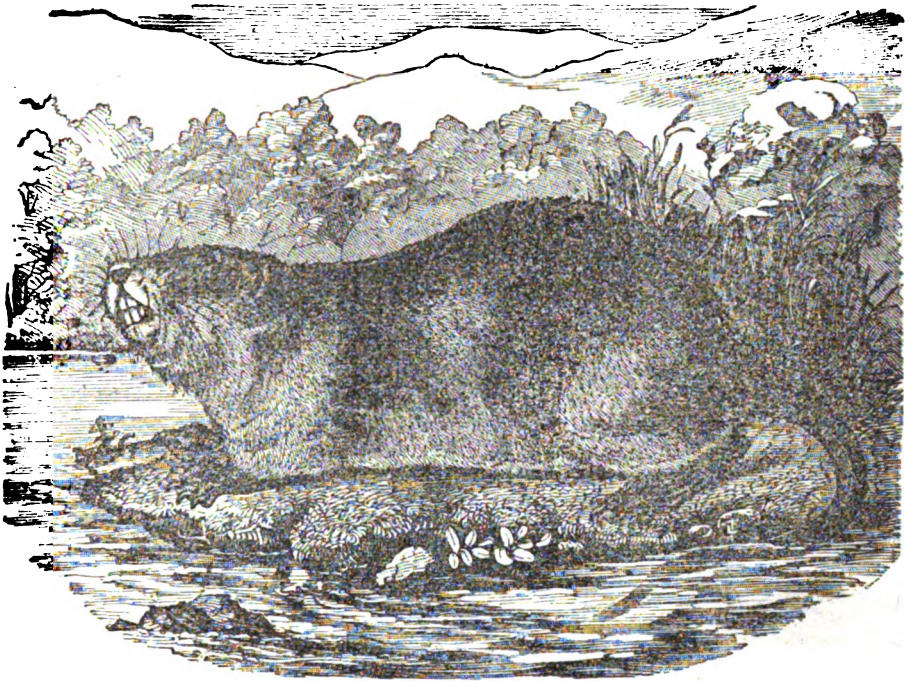

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